QSOURCE

JULY 1993 REVISION OF THE

SITE ASSESSMENT REPORT

OF

GEM CITY CHEMICALS, INC.

DAYTON, OHIO

probably less than the calculated value, and is estimated to be between 2,200 and 4,400 pounds, with a most likely value of 3,300 pounds.

5.0 EFFECTIVENESS OF THE VAPOR EXTRACTION SYSTEM

5.1 Design and Installation

To remove the volatile organic compounds from the vadose zone (the soil zone above the water table), five vapor extraction wells were installed in October- 1988. Locations of the vapor extraction wells are shown in Figure 20. Figure 10 shows the typical design of these installations. Well construction details are provided in Table 4. The five vapor extraction wells were installed in shallow borings and are constructed from 4" diameter PVC casing, with a 2.5 foot screen, installed at a nominal depth of 19.5 to 22 feet below the ground surface. This depth was at to slightly above the ground-water table at the time the wells were installed. Air is extracted from each well with a Regenair Model R6325A blower, with a rated maximum flow rate of 206 cubic feet of air per minute. Discharge of the extracted air is from a PVC stack, at an elevation of 8 feet above the ground surface. Permit to Install (PTI) for air emissions from the five vapor extraction wells (application No. 08-1681) was issued February 8, 1989.

5.2 Emissions Testing

Emissions from the vapor extraction wells were measured monthly and has been summarized in Table 8 Through August 1990, effluent air was tested with a organic vapor analyzer (OVA) calibrated to and reported as methane. After that date a photoionization detector (PID) calibrated to and reported as benzene was used

5.3 Removal Efficiency

Initial removal of VOCs by the soil vapor extraction wells was very high. Extraction rates had to be reduced initially to remain within discharge limits. Concentration of VOCs in the discharged air dropped and all blowers rates were set back to design rates. Vapor extraction wells were shut down during the aquifer evaluation testing. Blowers on several of the wells had to be replaced during the first year. After a year and a half of operation, concentrations of VOCs in the discharge air had fallen below detection levels and four of the five vapor extraction wells were turned off. All vapor extraction wells were restarted in July of 1991 but concentrations fell below detection levels within a week. The radius of influence was not determined at the time of installation. Vapor extraction well VE-3 was decommissioned (the below ground well was abandoned by removal and grouting) in July 1992, to allow for additional paving of the chemical storage and handling area. The remaining vapor extraction wells were briefly restarted in August, 1992 and the discharges were measured after a day of operation. No significant concentrations of VOCs were detected. Three of the four remaining vapor extraction wells were then decommissioned.

JULY 1993 REVISION OF THE

SITE ASSESSMENT REPORT

OF

GEM CITY CHEMICALS, INC.

DAYTON, OHIO

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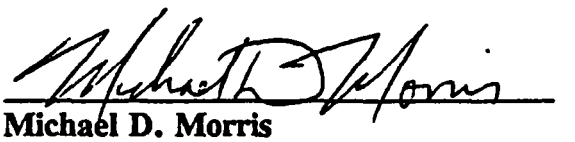

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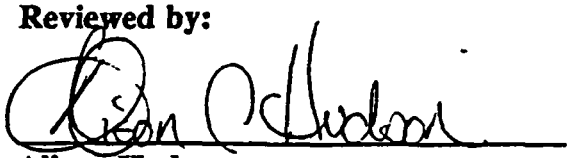

Alison Hudson
QA/QC Officer

Approved by:

David Stewart
President, Gem City Chemicals, Inc.

July 28, 1993

I93004

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Not copied	EXHIBIT C	TABULATED WATER LEVELS
✓	EXHIBIT D	QUARTERLY POTENTIOMETRIC SURFACE MAPS
partial	EXHIBIT E	REGIONAL WELL LOGS
Rec ✓	EXHIBIT F	ON-SITE TEST BORING LOGS
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SITE ASSESSMENT REPORT

OF

GEM CITY CHEMICALS, INC.

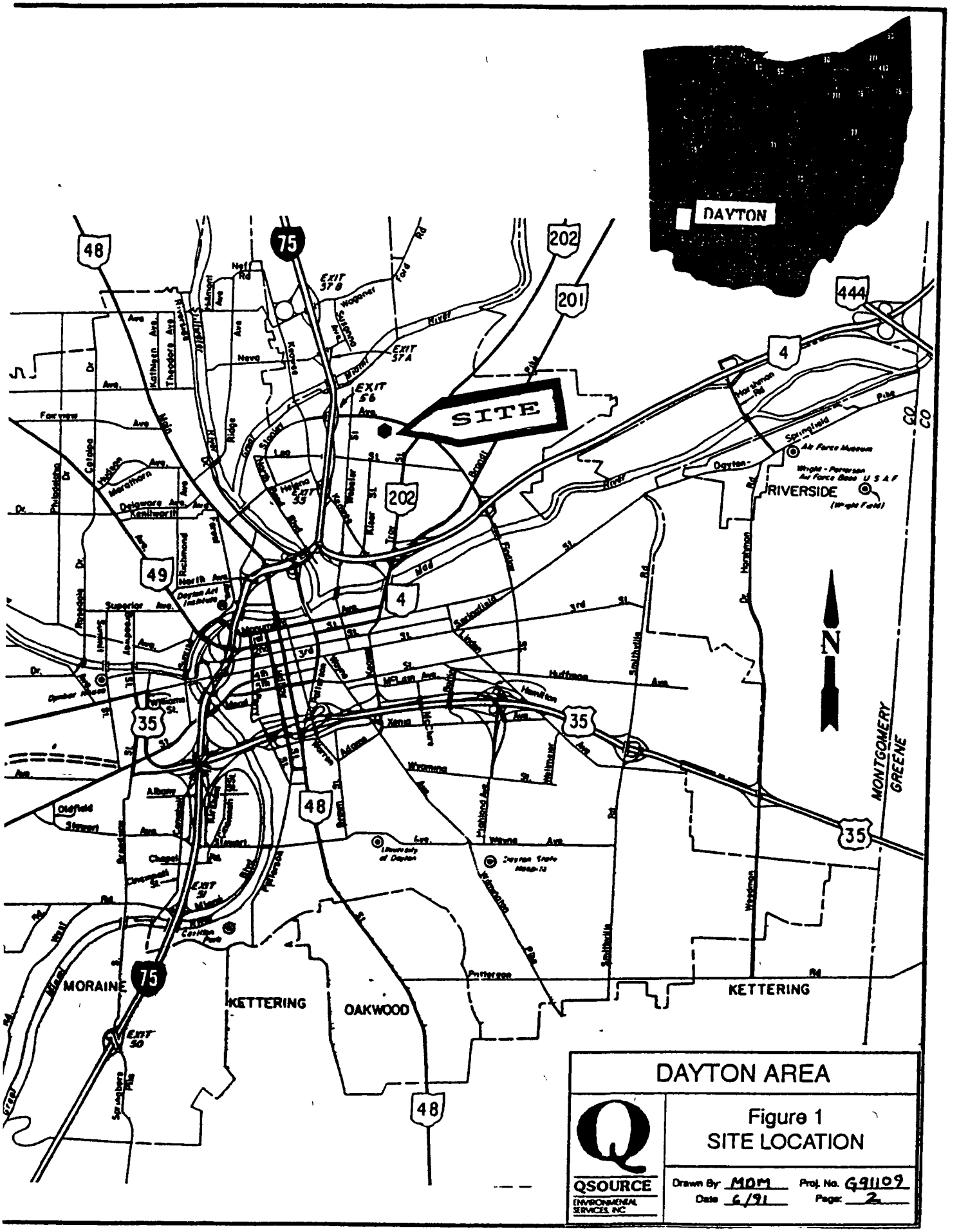
1.0 FACILITY BACKGROUND

Gem City Chemicals, Inc. is a chemical distribution, blending and repackaging facility which is located in Dayton, Ohio The company has been operating from this facility, located in a heavily-industrialized section of Dayton, for over twenty years. On July 6, 1992, Gem City Chemicals, Inc. entered into a consensual order with the Ohio Environmental Protection Agency (OEPA) to investigate the effectiveness of its existing ground-water monitoring program and ground-water recovery and treatment system. A Site Assessment Report (SAR) was submitted pursuant to that order on August 5, 1992. Following review of the SAR by OEPA, Gem City Chemicals was required to provide additional information needed by OEPA to assess the current system. The proposal per Administrative Order on Consent and reply to OEPA Comments was submitted to OEPA on November 20, 1992. Following a technical meeting with OEPA, a Revised SAR Proposal per the Administrative Order on Consent was submitted on December 18, 1992 and was approved by OEPA on December 25, 1993. The first revision of the Site Assessment Report including the required information and describing additional investigations that were undertaken to obtain that data was submitted to OEPA on March 1, 1993. Gem City Chemicals, Inc. received written comments to the Revised Site Assessment Report on June 22, 1993. In these comments, OEPA requested additions, clarifications and revisions of several technical issues. This revised Site Assessment Report incorporates those changes.

1.1 Site Location and Description

The Gem City Chemicals, Inc. facility is located at 1287 Air City Avenue, at Stanley Avenue, which is within the City of Dayton, Montgomery County, Ohio. This location corresponds to approximately 39°47'13" north latitude and 84°10'28" west longitude. The downtown Dayton area is approximately 2 miles to the south. The general site location is shown in Figure 1.

The site has several large buildings, sheds, outside drum storage areas and aboveground storage tanks on approximately 3 acres of a 7 acre parcel. The ground between the buildings is gravel covered and partly paved. Approximately 50% of all chemical storage and handling areas are hard-surfaced. The locations of the property lines, buildings and streets are shown in Figure 2, along with the current usage of the work areas and buildings. The area formerly and presently used for the handling and storage of chemicals is also delineated in Figure 2



DAYTON AREA

Figure 1
SITE LOCATION

QSOURCE
ENVIRONMENTAL SERVICES, INC

Drawn By: MDM
Date: 6/91
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Page: 2

1 - Office
2 - Packaging
3 - Calcium Chloride Storage Tanks
4 - Acid Storage Tanks
5 - Pipe Storage Shed
6 - Solvent Drum Storage Shed
7 - Enclosed Solvent Storage
8 - Barrel Washing
9 - Empty Drum Storage
10 - Empty Tank Storage
11 - Solvent Storage
12 - Solvent Pouring Shed
13 - Tanker Unloading
14 - Truck Loading
15 - Truck Parking
16 - Parking
17 - Warehouse
18 - Former Underground Storage Tanks
19 - Former Railroad Spur
20 - Former Unloading Manifold
21 - Former Coal Storage

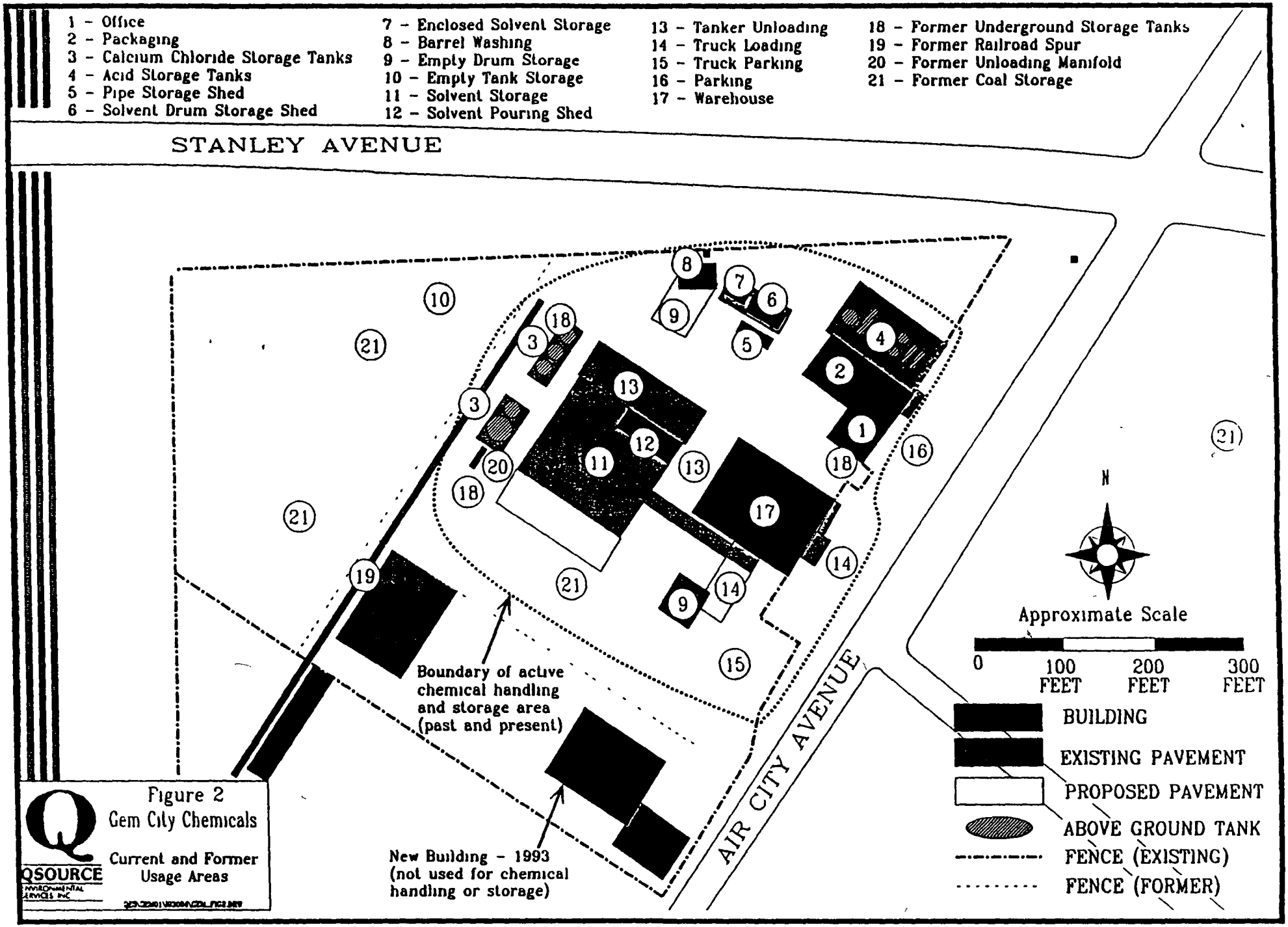


Figure 2
Gem City Chemicals
Current and Former Usage Areas

QSOURCE
ENVIRONMENTAL SERVICES INC

The surface elevation of the site is 750±5 feet above mean sea level (MSL) according to the USGS 7½ minute series, Dayton North Quadrangle, topographic map The site is located within a closed depression, any surface drainage from the site is captured at either a catch basin located near the middle of the northern property line or a catch basin near the intersection of Stanley Avenue and Air City Avenue. The site is between the Great Miami River and the Mad River and directly overlies the Miami Valley Aquifer which has been designated as a Sole Source Aquifer It is approximately 1 mile south of the City of Dayton's Miami Well Field and is at the southern edge of the cone of depression in the water table caused by the pumping at those wells. The City's Mad River Well Field is approximately 2 miles to the east and does not receive recharge from Gem City Chemicals, Inc. In addition to the municipal water wells, there are a number of private industrial wells in the area.

The area is mostly industrial with some commercial and residential areas to the south and east. The industrial neighbors range from small to quite large; many of the industries are engaged in significant usage and storage of chemicals. The area south of the Miami well field has a long history of industrial use and also of ground-water quality problems. OEPA is currently requiring investigations and/or remediation of a number of sites in and near the well fields and in the vicinity of Gem City Chemicals, Inc. One such site is a bulk oil storage terminal area, located approximately one half mile northeast of Gem City Chemicals, Inc Other sites being investigated include industrial facilities where chlorinated solvents may have been released into the ground water In August of 1988, the City of Dayton adopted a Well Field Protection Program to protect it's well fields and drinking water supplies from future contamination. The southern limit of the Miami Well Field Protection Overlay District is Stanley Avenue which is the northern boundary of Gem City Chemicals, Inc. Therefore, Gem City Chemicals, Inc. is located outside of the Wellfield Protection Overlay District.

1.2 Site History

Prior to 1969, Air City Fuels occupied the property now owned by Gem City Chemicals, Inc. and used the entire property for the storage of coal and fuel oil. A railroad siding extended into the property, as shown in Figure 2. Coal was unloaded from railroad cars and stored in piles on either side of the railroad siding. The coal was transported from the property by trucks, which exited the property via Air City Avenue. Underground storage tanks containing both leaded and unleaded gasoline were located southeast of the office building. These tanks were later removed by Gem City Chemicals Inc. Gem City Chemicals, Inc. has operated at the site since 1969. The railroad siding was taken out of service in 1982 and removed from the site in 1989. The property was originally leased from CSX Real Estate. Following abandonment of the railroad spur, Gem City Chemicals, Inc. returned control of much of the property to CSX Real Estate. Two fences were constructed, one along the line of the former railroad siding, and a second separating the actively-used portion of the property from the southern corner of the property. All operations occurred within the limits of these fences. The fences were removed after Gem City Chemicals, Inc. purchased the property in September 1989 Since that time, Gem City Chemicals has restricted the storage and handling of chemicals to this approximately three acres.

The operations of Gem City Chemicals, Inc involve distribution of industrial chemicals This primarily entails the purchase of a variety of chemical products in truck load quantities and

resale of these products to industrial accounts in less than truck load amounts. Many of the liquid chemical products are repackaged for resale into tote tanks, drums, and smaller containers to meet customer requirements. A small portion of the present operations includes preparation of blended products. Gem City Chemicals, Inc. is not considered a manufacturer and operates under Standard Industrial Classification (SIC) Code 5161 - Chemicals and Allied Products.

1.2.1 Chemical Handling Areas

During the entire time that the property has been operated by Gem City Chemicals, Inc. all chemical handling and chemical storage has taken place within the boundary shown in Figure 2. Areas to the south and west have been used for the storage of empty containers, drums and pallets. Bulk chemicals were delivered to the facility initially by both trains and trucks and were stored in the area between the railroad siding and the warehouse and packaging buildings, due to the proximity of these areas to sites where the chemicals were repackaged, blended and prepared for shipment. Clean, reconditioned drums were stored to the south of the warehouse building, again for convenience in handling.

Chemicals delivered by rail included drums of dry and liquid chemicals, which were unloaded by forklift, and bulk liquids, which were transferred into above-ground storage tanks (for liquid calcium chloride) or underground storage tanks (for flammable solvents) These tanks were located adjacent to the tracks.

Chemicals delivered by truck have included drums of dry and liquid chemicals, which have been unloaded by forklift, and bulk liquids, which have been unloaded directly into the bulk holding tanks. Bulk liquid calcium chloride unloading has occurred at the above-ground storage tanks located to the northwest of the solvent storage pad. Bulk acid unloading has occurred at the above-ground storage tanks located to the northeast of the packaging building. In the past, bulk solvents were unloaded into drums at a station immediately behind the warehouse, adjacent to the solvent storage pad, or into the underground storage tank manifold. Bulk solvents are now unloaded within a paved, diked pad located adjacent to the solvent storage pad. Drummed chemicals are unloaded at the solvent storage pad and the solvent drum storage shed.

All chemical repackaging and blending has historically been conducted at two locations on the site: in and around the pouring shed in the solvent drum storage area and in the packaging building.

All chemical storage has occurred within the area bounded by the acid storage tanks to the northeast, the office and the warehouse buildings on the southeast, the railroad siding on the northwest and the solvent storage pad and warehouse building on the southwest. Prior to 1982, this was done because this area was the most convenient and efficient location for the storage and handling of the chemicals. The more remote portions of the property, to the west of the railroad siding and in the southern corner of the property, were used for the occasional storage of empty drums and for truck parking.

Liquid chemicals are handled in either steel or polyethylene drums and in smaller sized plastic and metal containers. All steel drums, generally used for solvents, are sent off-site for reconditioning prior to reuse. Most of the tote tanks and drums are supplied to the customers on a deposit (returnable) basis. The used polyethylene drums (containing inorganic residues from acids and bases) have historically been washed, prior to reuse, at a drum washing station located near the northern property line. The rinsate is discharged by permit into the City sanitary sewer system, after on-site treatment.

1.2.2 *Chemicals Handled*

Chemicals handled at the facility include a large amount of acids, followed in volume by solvents, calcium chloride and caustics. Chemicals handled by Gem City Chemicals, Inc. include:

Acids

hydrochloric	sulfuric	nitric	oxalic
phosphoric	chromic	acetic	hydrofluoric

Solvents

butyl acetate	1,1,1-trichloroethane (1,1,1 TCA)	isopropyl alcohol
butyl alcohol	ethyl acetate	ethyl alcohol
methyl alcohol	methyl ethyl ketone (MEK)	glycol ethers
methylene chloride	methyl isobutyl ketone (MIBK)	mineral spirits
toluene	tetrachloroethylene (PERC)	acetone
xylene	trichloroethylene (TCE)	naphtha
freon	ethylene glycol	acetates

Others: Dry & Liquids

formaldehyde	sodium hypochlorite	cyanides
dry calcium chloride	dry sodium hydroxide	ammonium hydroxide
liquid calcium chloride	liquid sodium hydroxide	ferric chloride
ammonia	soda ash	calcium hypochlorite
lime	urea	phosphates
sodium nitrate	copper sulfate	sodium silicate
sodium hyposulfite	potassium permanganate	sodium bisulfite

1.2.3 Underground Storage Tanks

Underground storage tanks were formerly used on the site for flammable solvents delivered by rail and leaded and unleaded gasoline. The underground storage tanks for chemicals were used to store stoddard solvent, methyl alcohol, methyl ethyl ketone, xylene, acetone, toluene and isopropyl alcohol. Chlorinated solvents were never stored in these tanks. These tanks were located in the area now occupied by the above-ground calcium chloride tanks. These eight tanks were installed by Gem City Chemicals, Inc. between 1969 and 1978. Gem City Chemicals, Inc. reports that these tanks were installed according to the then-applicable City of Dayton Fire Department codes. Precautions against leakage included: cathodic protection of the tanks, asphaltic coatings on tanks and plumbing, a washed-sand bed beneath and around the tanks, and pressure testing upon installation.

The two tanks used for storage of regular and unleaded gasoline, were in use at the time Gem City Chemicals, Inc. began operations at the site in 1969, and no information concerning their installation is available.

According to information supplied by Gem City Chemicals, Inc. these tanks were removed from the property in April and May of 1986, pursuant to a permit issued by the City of Dayton. The tank removal was conducted according to prevailing regulations. Information supplied by Gem City Chemicals, Inc. regarding the removal of the tanks is included in Exhibit A. Gem City Chemicals, Inc. reports that no evidence of tank leakage was observed during removal.

1.2.4 Investigation and Remediation Efforts

During the course of a voluntary site assessment in 1987, Gem City Chemicals, Inc. became aware of the presence of volatile organic compounds in the soil and ground water at the site and initiated a voluntary investigation to determine the environmental condition of the property. A voluntary remediation plan was developed and implemented, based on the findings of the investigation. Ohio EPA reviewed the investigation results and remediation plan in July 1989. Ohio EPA required additional testing and monitoring of the site as part of the permitting requirements for the soil vapor venting and the ground-water extraction and treatment systems. Permits for the discharge of treated ground water and discharge of vapors from the extraction wells and the stripper tower were applied for by Gem City Chemicals, Inc and issued by the appropriate agencies

Air permits for vapor releases from the large, aboveground storage tanks were issued by OEPA in 1975 and 1984 Air permits for storage tanks included #1824 (1-10-84), #2672 (1-10-84), #1789 (1-10-84), #2031 (1-10-84), #1830 (1-10-84), #1805 (1-10-84) Copies of these permits are included in Exhibit B.

Gem City Chemicals, Inc. filed as a small quantity generator and transporter and received an identification number on August 13, 1986. The EPA identification number for the facility is OH0004472940.

A permit for a pretreatment system for pH neutralization (application No. 05-1893) was issued by OEPA on June 25, 1986. Permit to Install (PTI) for air emissions from the five vapor extraction wells (application No. 08-1681) was issued by OEPA on February 8, 1989. This permit was renewed in January, 1993. OEPA's letter of November 3, 1989 permitted the interim operation of the stripping tower and the discharge of the treated waters to the city storm sewer. Discharge to the city storm sewer was applied for on September 22, 1989 and permitted by a Special Privilege Permit granted by the City on November 17, 1989. Permit to Install (PTI) for air emissions from the stripping tower (application No. 08-1900) was issued by OEPA on December 6, 1989 Permit to Install (PTI) the ground-water treatment system (application No 05-3994) was issued by OEPA on January 29, 1991. The final NPDES discharge permit for the treated water from the stripper tower was issued on May 30, 1991. Copies of relevant permits are included in Exhibit B.

The presence of some of the volatile organic compounds in the soil and ground water underlying the Gem City Chemicals, Inc. facility may be the result of incidental small spills and leaks which have occurred over many years. Interviews with employees indicated that there had been overfilling of tanks on several occasions, but these releases involved acids. Prior to initiation of the pretreatment system, the drum washing operation released some waters with acids or bases, but not any solvents. Incidental solvent releases may have occurred during truck unloading, drum filling operations or during storage of the drums. Most of these operations occurred in areas located to the northwest and south of the warehouse. As discussed earlier, Gem City Chemicals, Inc. is located in an industrial area, and many other facilities in the area may have released chlorinated solvents and other VOCs into the ground water. Depending on prior ground-water flow directions and the location of these possible off-site releases, VOCs may have migrated and/or may be migrating onto the site through ground water flow.

1.2.4.1 Soil Sampling

Initial voluntary soil sampling was performed at the site on June 3, 1987 at 12 locations. The sampling locations are shown on Figure 3, and the gas chromatography results are included as Table 1. The results were quantified for 10 organic chemicals that were known to be stored on the site.

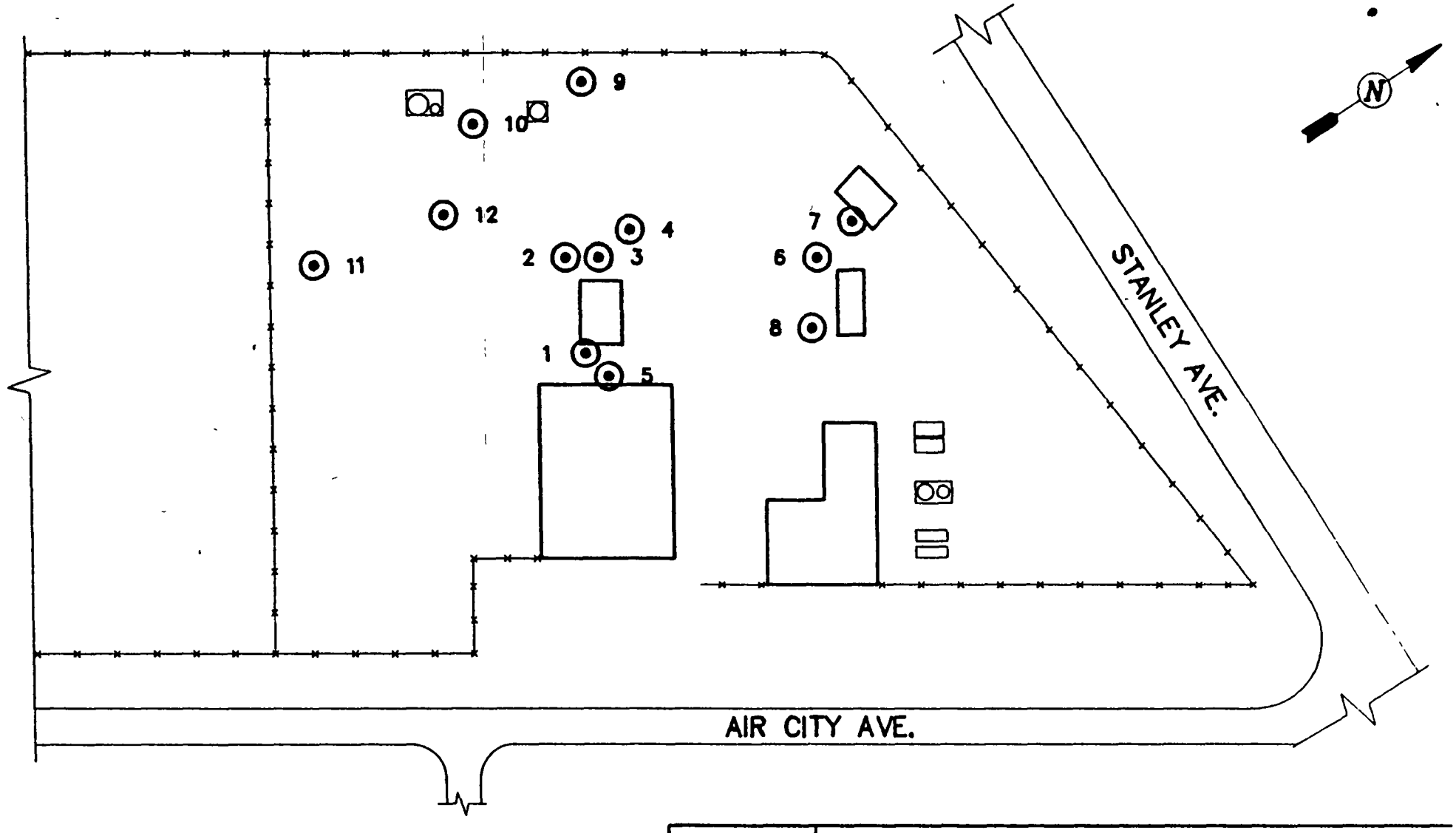
Table 1 Initial Soil Sampling Results
Results in µg/g (ppm)

Sample Location	1	2	3	4	5	6	7	8	9	10	11	12
methylene chloride	BDL	BDL	16.0	11 0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
tetrachloroethylene	167	76.0	554	17 0	6 3	5 8	4 7	BDL	1 7	BDL	BDL	BDL
trichloroethylene	60 0	16.0	141	7 7	12.0	5 6	BDL	1.2	77 0	BDL	BDL	3 4
1,1,1-trichloroethane	6.2	5.6	6.5	14 0	BDL	1 8	BDL	BDL	BDL	BDL	BDL	BDL
methyl alcohol	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
isopropyl alcohol	BDL	BDL	9 3	669	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Acetone	BDL	121	105	628	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toluene	BDL	53.0	111	33 0	BDL	BDL	BDL	BDL	12.0	BDL	BDL	BDL
Xylene	BDL	28.0	115	21 0	BDL	4 6	BDL	BDL	BDL	BDL	BDL	BDL
methyl ethyl ketone	BDL	31 0	23 0	43 0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

BDL = Below Detection Limits

1.2.4.2 Soil Gas Survey

A soil gas survey was conducted in and around the site in July 1988 at 40 locations. Results of the gas chromatography analysis of gas pulled from the probes were reported for trichloroethylene, tetrachloroethylene and 1,1,1-trichloroethane. The locations and results are shown in Figure 4.



LEGEND

⊙ SOIL SAMPLING LOCATION

Figure 3

SOIL SAMPLE LOCATIONS

GEM CITY CHEMICALS, INC.
DAYTON, OHIO

QSOURCE ENGINEERING, INC

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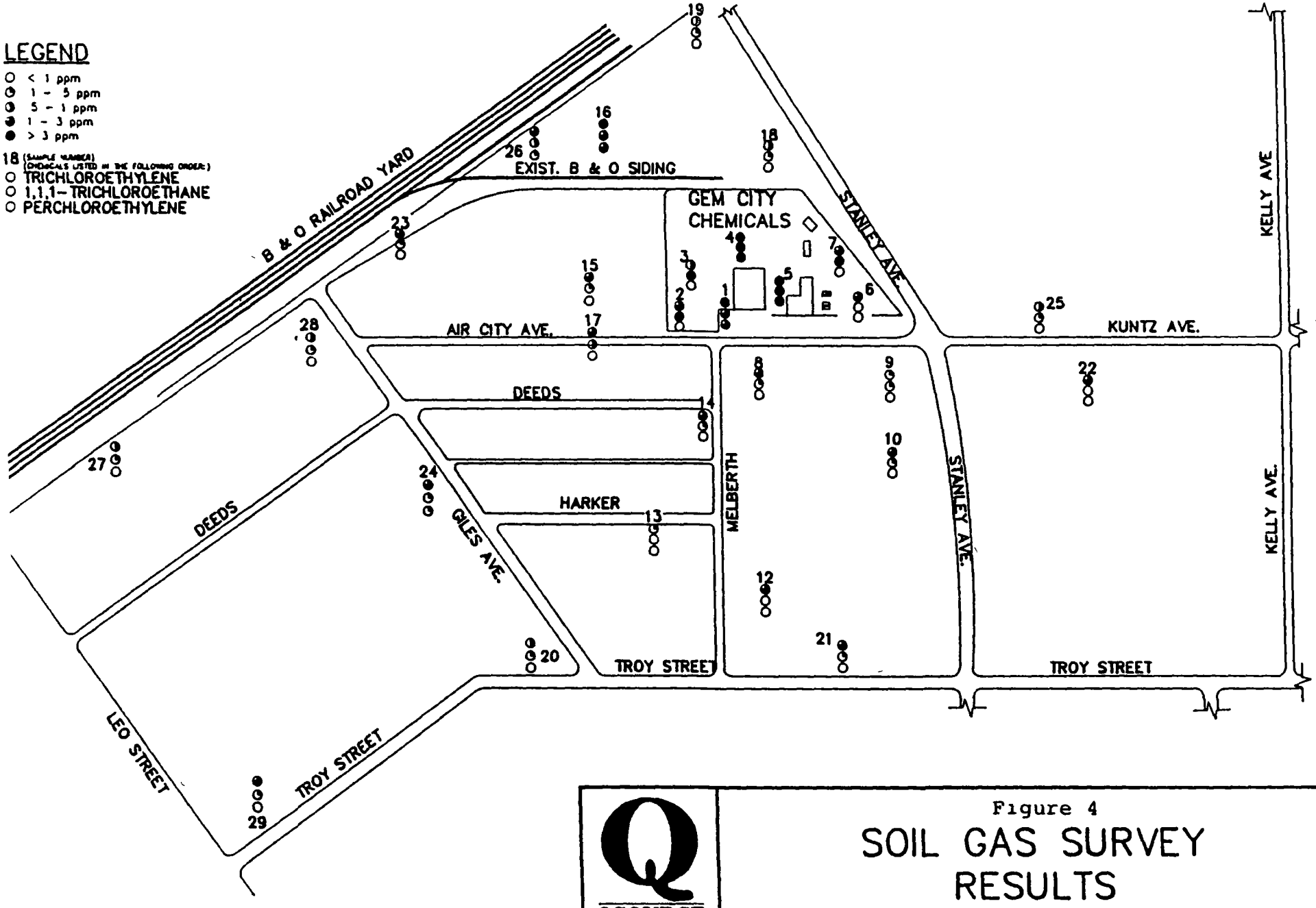

Figure 4

SOIL GAS SURVEY RESULTS

GEM CITY CHEMICALS, INC
DAYTON, OHIO

QSOURCE ENGINEERING INC

162.89010	2-16-89	L E F

89010R05/2-20-89/1 1

1.2.4.3 Ground-Water Monitoring

A total of ten monitor wells have been installed at this site to monitor ground-water quality. The monitor well locations are shown in Figure 5. During installation of the first four wells, ground-water samples were taken and analyzed for TCE, used as an indicator parameter for the presence of VOCs. Screen depths were set to match the zones with the highest concentrations of TCE. Ground-water samples from the four then-completed wells were collected and more fully analyzed in May 1988. Two additional clusters of monitor wells (a total of 6 wells) were installed in September 1988. For one year, samples were collected quarterly and are now collected semi-annually. Ground water samples from all ten wells were collected and analyzed in September 1988, October 1989, February, May, August and November of 1990, March and October of 1991, April and October of 1992 and June of 1993. Constituents detected in the monitor wells include: acetone, benzene, chloroform, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, ethylbenzene, hexachlorobutadiene, tetrachloroethene, toluene, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, trichloroethene, and vinyl chloride. Analysis results are shown in Table 2.

1.2.4.4 Ground-Water Recovery and Treatment System

An air stripper column treatment facility and a ground-water recovery well were installed in late 1989 and then put on-line in early 1990 with weekly monitoring of the effluent, pursuant to the SWDO/OEPA request and NPDES permit requirements. Water elevations in all the monitor wells have been taken on a weekly basis since early 1990. A summary of the water level data is included in Table 3 and the full table of water level measurements is included in Exhibit C. The measured water levels in the monitor wells and in a piezometer located adjacent to the recovery well for the period between February 1990 and February 1993 and for all of the monitoring wells and newly-installed piezometers since that data are shown in Figure 6 Weekly potentiometric surface maps have been drawn and submitted to OEPA for review since early 1990. Approximately 120 weekly potentiometric surface maps have been submitted to the OEPA for review. One map per quarter has been selected and included in Exhibit D in order to demonstrate that the cone of depression induced by the recovery well has been maintained under the site. Five additional piezometers were installed at the Gem City Chemicals, Inc. facility as part of the field work in support of this Revised SAR. Four of these piezometers were installed at the same depth as the wells used to generate the potentiometric surface maps included in Exhibit D. Water levels in the existing monitor well network, the existing piezometer and the newly-installed piezometers were measured on February 8 and 23, 1993 and were used to generate the potentiometric surface map shown in Figure 7. This map also shows the estimated extent of the zone of capture and the directions of ground water flow within this zone and the minimum zone of capture, based on the limits of the monitoring data and a conservative interpretation of the extent of the potentiometric surface contours between P-2 and P-3. This minimum zone

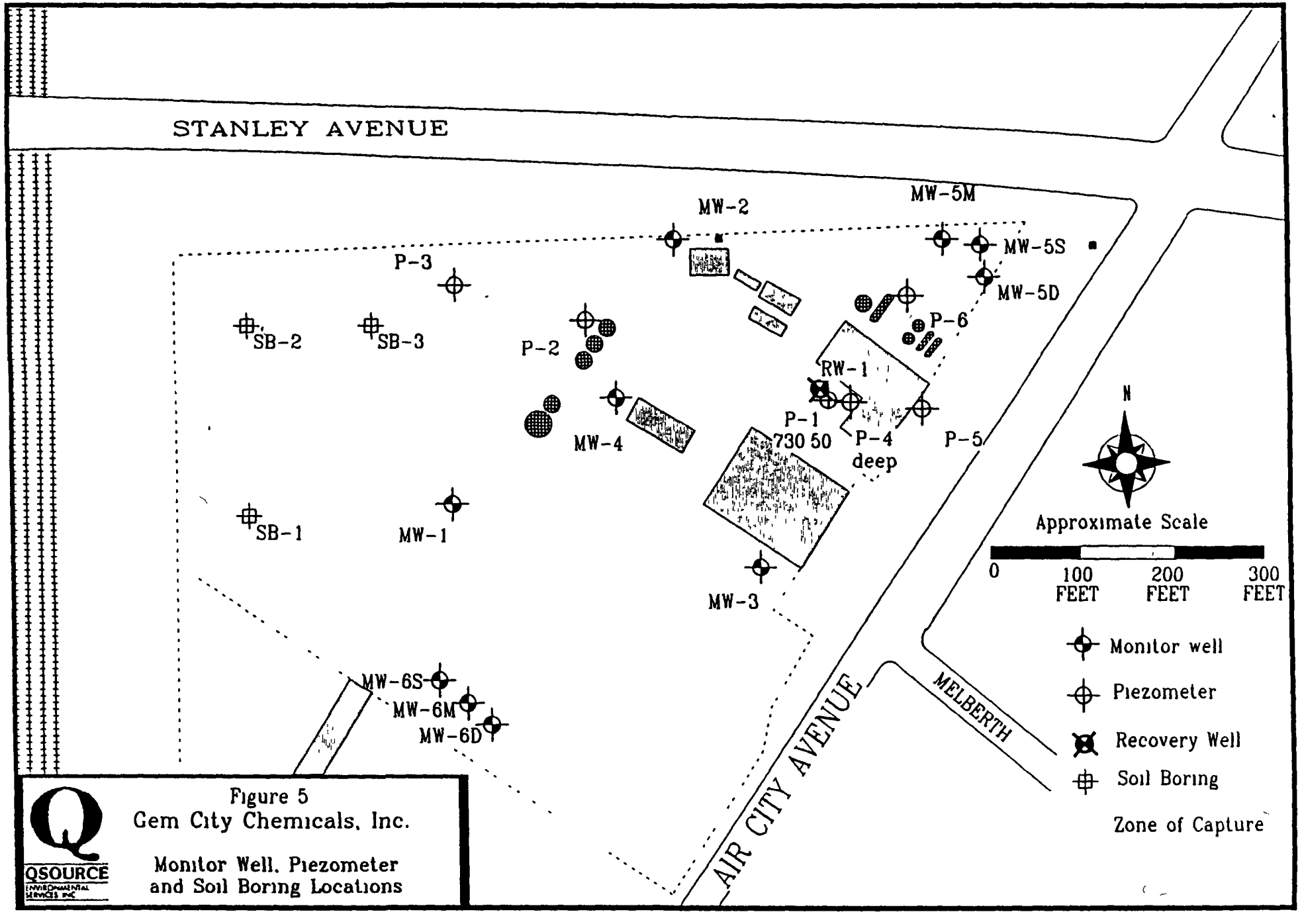

Figure 5
Gem City Chemicals, Inc.

Monitor Well, Piezometer and Soil Boring Locations

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Table 2
Gem City Chemicals, Inc.
Ground Water Quality

MW-1

Parameter (ug/L)		OEPA WQ stds	5/2/88	9/20/88	8/24/89	2/13/90	5/8/90	8/16/90	11/8/90	3/19/91	10/2/91	4/29/92	11/6/92	6/17/93
Acetone			ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Benzene	fMCL	5	bdl	1 6	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Chloroform			99	11 8	7	10 0	19 0	bdl	bdl	4 0	5 5	bdl	bdl	bdl
Dichloroethane (1,1)			1 7	2 3	bdl	bdl	bdl	bdl	bdl	1 6	bdl	99	16	3 4
Dichloroethane (1,2)	fMCL	5	bdl	bdl	bdl	bdl	bdl	bdl	bdl	1 3	bdl	120	bdl	bdl
Dichloroethene (1,1)	fMCL	7	5	1 2	5	bdl	bdl	bdl	bdl	bdl	bdl	108	33	6 9
Dichloroethene (cis 1,2)	pMCL	100	23 8	7 1	ntf	ntf	bdl	ntf	ntf	5 3	14 0	131	26	8 4
Dichloroethene (trans 1,2)	pMCL	70	44	bdl	ntf	ntf	bdl	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Dichloroethene(1,2 total)	pMCL	70	24 2	7 1	10	5 0	bdl	bdl	bdl	5 3	14 0	131	26	8 4
Ethylbenzene	pMCL	700	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Hexachlorobutadiene			ntf	ntf	ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl
Tetrachloroethene	fMCL	5	2 5	1 4	bdl	bdl	bdl	bdl	bdl	1 5	bdl	bdl	bdl	4 0
Toluene	pMCL	2000	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,3)			ntf	ntf	ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,4)	pMCL	9	ntf	ntf	ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl
Trichloroethane (1,1,1)	fMCL	200	20	7 1	22.	25 0	14 0	8 0	14 0	11 0	11 0	1360	409	76
Trichloroethene	fMCL	5	25 1	117	62	81	93	92	85	100	197	247	108	45
Vinyl Chloride	fMCL	2	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl

MW-2

		OEPA WQ stds	5/2/88	9/20/88	8/24/89	2/13/90	5/8/90	8/16/90	11/8/90	3/19/91	10/2/91	4/29/92	11/6/92	6/17/93
Acetone			ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Benzene	fMCL	5	1 3	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Chloroform			64	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Dichloroethane (1,1)			4	7	bdl	bdl	bdl	bdl	bdl	1 3	bdl	2 6	4 5	bdl
Dichloroethane (1,2)	fMCL	5	bdl	bdl	bdl	bdl	bdl	bdl	bdl	1 0	bdl	bdl	bdl	bdl
Dichloroethene (1,1)	fMCL	7	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	2 9	5 7	1 1
Dichloroethene (cis 1,2)	pMCL	100	2 1	1 5	bdl	ntf	ntf	ntf	ntf	5 2	bdl	5 5	11	2 2
Dichloroethene (trans 1,2)	pMCL	70	bdl	bdl	bdl	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Dichloroethene(1,2 total)	pMCL	70	2.1	1 5	8.	6 0	bdl	9 0	bdl	5 2	bdl	5 5	11	2 2
Ethylbenzene	pMCL	700	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Hexachlorobutadiene			ntf	ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Tetrachloroethene	fMCL	5	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Toluene	pMCL	2000	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,3)			ntf	ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,4)	pMCL	9	ntf	ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichloroethane (1,1,1)	fMCL	200	7 31	5 1	5	18	bdl	32	bdl	8 0	7 6	15.	24	13
Trichloroethene	fMCL	5	34 2	56 5	33	38	27	36	21	23	36.	29	23	23
Vinyl Chloride	fMCL	2	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl

fMCL = Final Maximum Contaminant Level
pMCL = Proposed Maximum Contaminant Level
bdl = Below Detection Limit
ntf = Not Tested For

Table 2 continued

MW-3

		OEPA WQ stds	5/2/88	9/20/88	8/24/89	2/13/90	5/8/90	8/16/90	11/8/90	3/19/91	10/2/91	4/29/92	11/6/92	6/18/93
Acetone			ntf	ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Benzene	fMCL	5	bdl	ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Chloroform			bdl	ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	3 7	bdl
Dichlorodifluoromethane			bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	17
Dichloroethane (1,1)			25 1	74 2	45	10	15	13	23	32	12	bdl	48	47
Dichloroethane (1,2)	fMCL	5	17 5	bdl	bdl	bdl	bdl	bdl	bdl	95	52	bdl	2 9	1.3
Dichloroethene (1,1)	fMCL	7	53 7	94 7	152	34	58	39	95	100	45	bdl	115	116
Dichloroethene (cis 1,2)	pMCL	100	61 5	40	ntf	ntf	bdl	ntf	ntf	90	46	123	137	166
Dichloroethene (trans 1,2)	pMCL	70	1 55	bdl	ntf	ntf	bdl	ntf	ntf	bdl	bdl	bdl	7 4	13
Dichloroethene(1,2 total)	pMCL	70	63 1	40	90	31	41	36	54	90	46	123	144 4	179
Ethylbenzene	pMCL	700	bdl	ntf	9	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Hexachlorobutadiene			ntf	ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Tetrachloroethene	fMCL	5	bdl	bdl	20	28	81	142	558	490	241	532	445	76
Toluene	pMCL	2000	bdl	ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,3)			ntf	ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,4)	pMCL	9	ntf	ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichloroethane (1,1,1)	fMCL	200	165	518	396	298	513	420	1085	740	198	293	1100	596
Trichloroethene	fMCL	5	70 4	357	160	170	221	218	195.	435	189	350	274	72.
Vinyl Chloride	fMCL	2	5 77	ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	4 9

MW-4

		OEPA WQ stds	5/2/88	9/20/88	8/24/89	2/13/90	5/8/90	8/16/90	11/8/90	3/19/91	10/2/91	4/29/92	11/6/92	6/17/93
Acetone			ntf	ntf	ntf	bdl	bdl	ntf	bdl	bdl	3 0	bdl	bdl	bdl
Benzene	fMCL	5	3	2 6	bdl	bdl	bdl	ntf	bdl	bdl	bdl	bdl	bdl	bdl
Chloroform			9 05	ntf	bdl	bdl	bdl	ntf	bdl	1 3	bdl	bdl	2 8	2 6
Dichloroethane (1,1)			7 2	9	8.	bdl	bdl	bdl	bdl	3 1	bdl	58	11	3 2
Dichloroethane (1,2)	fMCL	5	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	97	bdl	7
Dichloroethene (1,1)	fMCL	7	bdl	ntf	11	bdl	bdl	bdl	bdl	bdl	bdl	89	23	8 7
Dichloroethene (cis 1,2)	pMCL	100	13 4	3 2	ntf	ntf	ntf	ntf	ntf	9.3	11	bdl	20	13
Dichloroethene (trans 1,2)	pMCL	70	24	6	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Dichloroethene(1,2 total)	pMCL	70	13 6	3 8	24	13	8 0	16	6 0	9 3	11	bdl	20	13
Ethylbenzene	pMCL	700	bdl	ntf	bdl	bdl	bdl	ntf	bdl	bdl	bdl	bdl	bdl	bdl
Hexachlorobutadiene			ntf	ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Tetrachloroethene	fMCL	5	7 2	4 1	11	9	15	10	15	13	17	82	26	12.
Toluene	pMCL	2000	bdl	9	bdl	bdl	bdl	ntf	bdl	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,3)			ntf	ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,4)	pMCL	9	ntf	ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichloroethane (1,1,1)	fMCL	200	13 1	3 2	55	50.	38	88	24	15	12.	910	326	79
Trichloroethene	fMCL	5	53 5	66.2	88	90	85	82	65	92	67	bdl	83	53
Vinyl Chloride	fMCL	2	bdl	ntf	bdl	bdl	bdl	ntf	bdl	bdl	bdl	bdl	bdl	bdl

fMCL = Final Maximum Contaminant Level
pMCL = Proposed Maximum Contaminant Level
BDL = Below Detection Limit
NTF = Not Tested For

Table 2 continued

MW-5s

	OEPA WQ stds	5/2/88	9/20/88	8/24/89	2/13/90	5/8/90	8/16/90	11/8/90	3/19/91	10/2/91	4/29/92	11/6/92	6/17/93
Acetone			ntf	ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Benzene	fMCL 5		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Chloroform			ntf	31	13	17	16	bdl	6 5	12.	bdl	bdl	bdl
Dichloroethane (1,1)			ntf	24	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Dichloroethane (1,2)	fMCL 5		ntf	bdl	bdl	bdl	bdl	bdl	28.	19	5 7	bdl	bdl
Dichloroethene (1,1)	fMCL 7		ntf	50	6	10	14	9	14	bdl	5 0	bdl	bdl
Dichloroethene (cis 1,2)	pMCL 100		2000	ntf	ntf	ntf	ntf	ntf	89	26	6 9	9 2	bdl
Dichloroethene (trans 1,2)	pMCL 70		ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Dichloroethene(1,2 total)	pMCL 70		2000	372	158	243	250	66	89	26	6 9	9 2	bdl
Ethylbenzene	pMCL 700		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Hexachlorobutadiene			ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Tetrachloroethene	fMCL 5		ntf	bdl	bdl	bdl	bdl	37	bdl	bdl	bdl	bdl	bdl
Toluene	pMCL 2000		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,3)			ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,4)	pMCL 9		ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichloroethane (1,1,1)	fMCL 200		1830	315	142	364	443	255	227	87	80	86.	35
Trichloroethene	fMCL 5		413	250	158	340	438	394	187	163	168	119	46
Vinyl Chloride	fMCL 2		ntf	9	bdl	bdl	ntf	bdl	bdl	bdl	bdl	bdl	bdl

MW-5m

	OEPA WQ stds	5/2/88	9/20/88	8/24/89	2/13/90	5/8/90	8/16/90	11/8/90	3/19/91	10/2/91	4/29/92	11/6/92	6/17/93
Acetone			ntf	ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Benzene	fMCL 5		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Chloroform			28 3	bdl	bdl	bdl	bdl	bdl	bdl	11	bdl	16	bdl
Dichloroethane (1,1)			20 5	20	bdl	bdl	21	18.	11	bdl	4 2	9 6	bdl
Dichloroethane (1,2)	fMCL 5		ntf	bdl	bdl	bdl	bdl	bdl	26	36	9 6	bdl	bdl
Dichloroethene (1,1)	fMCL 7		86 4	24	bdl	10	58	61	26	50	bdl	28	bdl
Dichloroethene (cis 1,2)	pMCL 100		67 1	ntf	ntf	ntf	ntf	ntf	98	75	26	44	33
Dichloroethene (trans 1,2)	pMCL 70		ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	1 1	bdl	bdl
Dichloroethene(1,2 total)	pMCL 70		67 1	119	24	79	120	137	98	75	27 1	44.	33
Ethylbenzene	pMCL 700		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Hexachlorobutadiene			ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Tetrachloroethene	fMCL 5		6.	8	bdl	bdl	9	11.	9 5	bdl	6 0	8 1	bdl
Toluene	pMCL 2000		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,3)			ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,4)	pMCL 9		ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichloroethane (1,1,1)	fMCL 200		575	137	79	198	421	535.	210	142.	64	278	161.
Trichloroethene	fMCL 5		597	88	35	143.	217	227	140	157	81	171	170
Vinyl Chloride	fMCL 2		ntf-	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl

fMCL = Final Maximum Contaminant Level
pMCL = Proposed Maximum Contaminant Level
bdl = Below Detection Limits
ntf = Not Tested For

Table 2 continued

MW-5d

	OEPA WQ stds	5/2/88	9/20/88	8/24/89	2/13/90	5/8/90	8/16/90	11/8/90	3/19/91	10/2/91	4/29/92	11/6/92	6/17/93
Acetone			ntf	ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Benzene	fMCL 5		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Chloroform			ntf	bdl	bdl	bdl	bdl	bdl	bdl	11	bdl	8 4	7
Dichloroethane (1,1)			55.3	10	6	bdl	10	9	12	10	14	10	7 4
Dichloroethane (1,2)	fMCL 5		ntf	bdl	bdl	bdl	bdl	bdl	24	31	40	bdl	9
Dichloroethene (1,1)	fMCL 7		14 2	5	bdl	bdl	6	bdl	11	bdl	bdl	8 2	6 9
Dichloroethene (cis 1,2)	pMCL 100		14	ntf	ntf	ntf	ntf	ntf	26	26	22	8 1	17
Dichloroethene (trans 1,2)	pMCL 70		ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	1 9
Dichloroethene(1,2 total)	pMCL 70		14	bdl	6	bdl	12.	12.	26	26	22	8 1	18 9
Ethylbenzene	pMCL 700		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Hexachlorobutadiene			ntf	bdl	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Tetrachloroethene	fMCL 5		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Toluene	pMCL 2000		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,3)			ntf	bdl	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,4)	pMCL 9		ntf	bdl	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl
Trichloroethane (1,1,1)	fMCL 200		209	68	97	176	174	221	185	127	310	204	104
Trichloroethene	fMCL 5		35	15	19	33	49	46.	52	69	102	41	31
Vinyl Chloride	fMCL 2		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl

MW-6S

	OEPA WQ stds	5/2/88	9/20/88	8/24/89	2/13/90	5/8/90	8/16/90	11/8/90	3/19/91	10/2/91	4/29/92	11/6/92	6/18/93
Acetone			ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Benzene	fMCL 5		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Carbon Tetrachloride	fMCL 100		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	7 5
Chloroform			28 3	20	9	22	17	15.	12.	22	6 3	7 5	bdl
Dichloroethane (1,1)	DL 1		4.3	bdl	7	bdl	bdl	bdl	bdl	bdl	3 5	bdl	bdl
Dichloroethane (1,2)	fMCL 5		ntf	bdl	bdl	bdl	bdl	bdl	12	bdl	4 6	bdl	bdl
Dichloroethene (1,1)	fMCL 7		2.7	bdl	20	bdl	bdl	bdl	bdl	bdl	1 6	bdl	bdl
Dichloroethene (cis 1,2)	pMCL 100		5.3	ntf	ntf	ntf	ntf	ntf	6 2	bdl	4 0	bdl	bdl
Dichloroethene (trans 1,2)	pMCL 70		ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Dichloroethene(1,2 total)	pMCL 70		5 3	9	31.	bdl	bdl	bdl	6 2	bdl	4 0	bdl	bdl
Ethylbenzene	pMCL 700		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Hexachlorobutadiene			ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Tetrachloroethene	fMCL 5		ntf	bdl	15	bdl	bdl	bdl	bdl	bdl	2 4	bdl	bdl
Toluene	pMCL 2000		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,3)			ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,4)	pMCL 9		ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichloroethane (1,1,1)	fMCL 200		135	70	332.	111	85	146	94	73	63	99	42.
Trichloroethene	fMCL 5		169	71	99	84	71	95	62	62.	59	99	bdl
Vinyl Chloride	fMCL 2		ntf	bdl	bdl	bdl	ntf	bdl	bdl	bdl	bdl	bdl	bdl

fMCL = Final Maximum Contaminant Level
pMCL = Proposed Maximum Contaminant Level
bdl = Below Detection Limit
ntf = not tested For

Table 2 continued

MW-6m

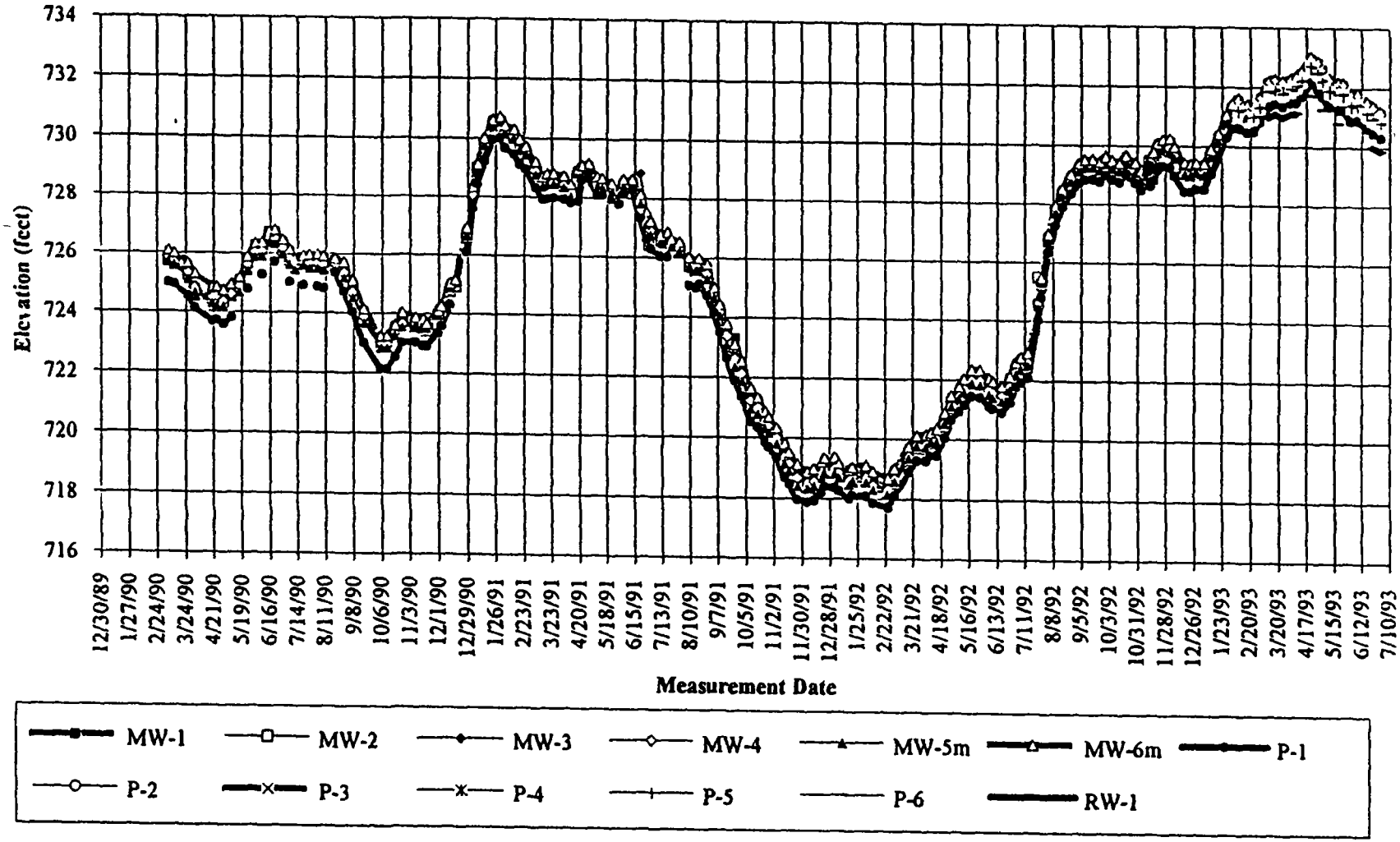
	OEPA WQ stds	5/2/88	9/20/88	8/24/89	2/13/90	5/8/90	8/16/90	11/8/90	3/19/91	10/2/91	4/29/92	11/6/92	6/18/93
Acetone			ntf	ntf	bdl	83	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Benzene	fMCL 5		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Chloroform			ntf	ntf	bdl	bdl	bdl	bdl	bdl	1 1	bdl	bdl	bdl
Dichloroethane (1,1)			16 9	10	6	bdl	bdl	6	3 8	bdl	27	17	bdl
Dichloroethane (1,2)	fMCL 5		ntf	bdl	bdl	bdl	bdl	bdl	7 6	15	47	bdl	bdl
Dichloroethene (1,1)	fMCL 7		89	36	20	bdl	13	25	6 6	13	92	56	bdl
Dichloroethene (cis 1,2)	pMCL 100		38 7	ntf	ntf	ntf	ntf	ntf	17	26	273	34	bdl
Dichloroethene (trans 1,2)	pMCL 70		ntf	ntf	ntf	ntf	ntf	ntf	1 5	bdl	bdl	bdl	bdl
Dichloroethene(1,2 total)	pMCL 70		38 7	30	31	13	27	38	18 5	26	273	34	bdl
Ethylbenzene	pMCL 700		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Hexachlorobutadiene			ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Tetrachloroethene	fMCL 5		7 6	38	29	bdl	39	96	33	49	848	240	119
Toluene	pMCL 2000		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,3)			ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,4)	pMCL 9		ntf	ntf	ntf	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Trichloroethane (1,1,1)	fMCL 200		837	226	233	25	164	335	56	66	845	723	190
Trichloroethene	fMCL 5		178	95	105	92	89	115	47	89	378	123	75
Vinyl Chloride	fMCL 2		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl

MW-6D

	OEPA WQ stds	5/2/88	9/20/88	8/24/89	2/13/90	5/8/90	8/16/90	11/8/90	3/19/91	10/2/91	4/29/92	11/6/92	6/18/93
Acetone			ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Benzene	fMCL 5		bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Chloroform			bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Dichloroethane (1,1)			bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Dichloroethane (1,2)	fMCL 5		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Dichloroethene (1,1)	fMCL 7		bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Dichloroethene (cis 1,2)	pMCL 100		bdl	bdl	bdl	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Dichloroethene (trans 1,2)	pMCL 70		bdl	bdl	bdl	ntf	ntf	ntf	bdl	bdl	bdl	bdl	bdl
Dichloroethene(1,2 total)	pMCL 70		bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Ethylbenzene	pMCL 700		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Hexachlorobutadiene			ntf	ntf	ntf	ntf	ntf	ntf	4 2	bdl	bdl	bdl	bdl
Tetrachloroethene	fMCL 5		bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Toluene	pMCL 2000		bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,3)			ntf	ntf	ntf	ntf	ntf	ntf	4 0	bdl	bdl	bdl	bdl
Trichlorobenzene (1,2,4)	pMCL 9		ntf	ntf	ntf	ntf	ntf	ntf	3 4	bdl	bdl	bdl	bdl
Trichloroethane (1,1,1)	fMCL 200		3 1	bdl	bdl	bdl	8	bdl	bdl	bdl	bdl	1 2	bdl
Trichloroethene	fMCL 5		6 -	bdl	bdl	bdl	5	bdl	2 4	bdl	bdl	1 1	bdl
Vinyl Chloride	fMCL 2		ntf	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl

fMCL = Final Maximum Contaminant Level
pMCL = Proposed Maximum Contaminant Level
bdl = Below Detection Limits
ntf = Not Tested For

Figure 6 - Gem City Chemicals, Inc.
Potentiometric Surface Values



of capture, as determined from potentiometric data, extends beneath the entire actively-used portion of the property.

Table 3 - Summary of Water Level Measurements

WELL NUMBER	MINIMUM WATER ELEVATION	AVERAGE WATER ELEVATION	MAXIMUM WATER ELEVATION	WATER LEVEL FEB. 8, 1993	WATER LEVEL FEB. 23, 1993	VARIABILITY OF WATER LEVELS
MW-1	718 45	725 47	731 55	731 55	731 29	13 10
MW-2	718 17	725 32	731 28	731 28	731 08	13 11
MW-3	718 28	725 34	731 38	731 38	731 07	13 10
MW-4	718 33	725 41	731 40	731 40	731 10	13 07
MW-5S	718 14	725 29	731 27	731 27	731 07	13 13
MW-5M	718 19	725 31	731 35	731 35	731 11	13 16
MW-5D	718 09	725 26	731 31	731 31	731 11	13 22
MW-6S	718 48	725 55	731 44	731 44	731 17	12 96
MW-6M	718 62	725 67	731 64	731 64	731 36	13 02
MW 6D	718 67	725 66	731 62	731 62	731 34	12 95
P 1	717 40	723 46	730 62	730 62	730 50	13 22
P-2				731 39	731 15	
P 3				731 37	731 14	
P-4				731 17	730 93	
P-5				731 22	731 00	
P-6				731 21	731 01	

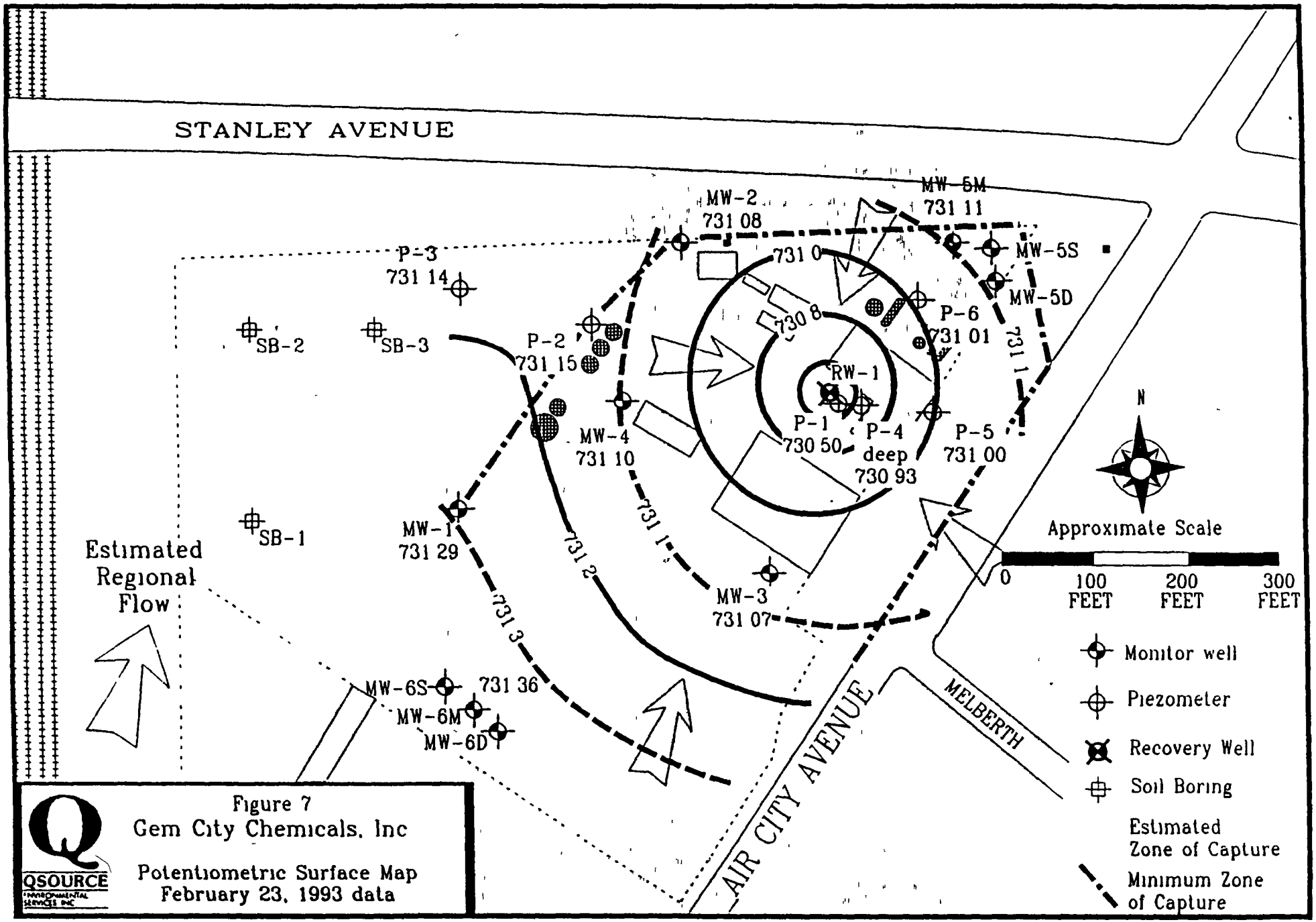


Figure 7
Gem City Chemicals, Inc
Potentiometric Surface Map
February 23, 1993 data

QSOURCE
ENVIRONMENTAL SERVICES INC

1.2.4.5 Soil Vapor Extraction System

Five soil vapor extraction wells were installed in 1989. Emissions from these wells were measured monthly until the wells were shut down in July 1991. The soil vapor extraction wells were effective at removing the volatile organic compounds from the vadose zone. High concentrations of VOCs were measured in the discharge during the first several months after the system started operating. After the soil venting system had been in operation for approximately one year, the concentration of volatile organic compounds being removed by the system declined. Effectiveness of the soil vapor extraction system is discussed in Section 5.0. The wells were temporarily turned off when no detectable concentrations of volatiles could be measured in their discharge. All soil vapor extraction wells were completely shut down during the fall of 1991. One vapor extraction well was abandoned and removed in July 1992 to allow for paving of a portion of the site. The remaining vapor extraction wells were briefly restarted in August, 1992 and the discharges were measured after a day of operation. No significant concentrations of VOCs (defined as 5 ppm or less, and at or below background reading on a PID) were detected. Three of the four remaining vapor extraction wells were then decommissioned by removing the blower equipment and the well casing, and filling the well boring with a cement-bentonite grout. The last vapor extraction well was decommissioned in the same manner in June, 1993. Gem City Chemicals, Inc. has renewed the permits for five vapor extraction wells, to allow for potential re-installation at different locations in the future. No decision has been made as to when or whether the vapor extraction wells will be re-installed.

1.2.4.6 Hard-Surfacing Program

In June 1990, Gem City Chemicals, Inc. began hard-surfacing active portions of the site where chemical storage and handling take place, in order to prevent any possible releases into the environment and increase the effectiveness of the vapor extraction system. To date, approximately 50% of the active portion of the property has been hard-surfaced.

1.2.4.7 Additional Investigations for the Revised SAR

To collect the additional information required for this revised Site Assessment Report, the following additional investigations were conducted:

To determine if soils in the western portion of the property were a source of any VOCs, three shallow test borings were completed in the unused western portion of the site, at locations shown in Figure 5. The number of test borings and soil samples to be taken, and their approximate locations, were discussed with representatives of the OEPA in the field prior to the start of field investigations. The unused portion of the property beyond the old railroad right-of-way and monitoring network was subdivided into three approximately equal areas, and

each test boring was located near the center of one of these areas. The exact location for each boring was selected by observing where surface runoff was likely to be ponded The materials encountered in each test boring were logged and described, and one sample from each test boring was submitted for laboratory analysis. The soil samples were chosen to represent the most-likely sample to be contaminated, based on the presence of fine-grained soil and/or fill materials present above the coarser-grained sands and gravels, and based on the highest readings obtained by field screening of the samples with a Photo-Ionizing Detector (PID). As shown by the laboratory testing results in Exhibit N, no volatile organic compounds (VOCs) were detected in the soil samples submitted. Therefore, there is no evidence from this limited sampling that the VOCs present in the ground water originated from this portion of the Gem City Chemicals, Inc. facility.

To further define the potentiometric surface, five additional piezometers were installed at locations specified in the Revised SAR Proposal and agreed to by representatives of OEPA. Four piezometers were screened at a depth of 50 feet, to match the screen interval of the monitor wells used in determining the potentiometric surface. The fifth piezometer was screened at the bottom of the aquifer, in order to determine whether or not water from the bottom of the aquifer was being captured by the partially-penetrating recovery well. The top-of-casing elevations of the newly-installed piezometers and existing monitor wells were determined by surveying, the depth to water was measured, and a potentiometric surface map was compiled based on this data.

The standard operating procedures used for the completion of the test borings, the logging of the samples and installation of the piezometers were previously submitted to OEPA. They are incorporated as Exhibit L. Also included as part of Exhibit L is a description of modifications to the installation protocol that were adopted due to field conditions. These variations were described to and approved by representatives of OEPA in telephone conversations during the course of field work. Test boring logs and as-built diagrams are included as Exhibit M. The sampling logs, chain-of-custody form and laboratory report for VOC sampling is included in Exhibit N.

2.0 HYDROGEOLOGIC CONDITIONS

The following discussion of the regional geology and site conditions was prepared from published geologic literature and from on-site investigations.

2.1 Description of Regional Hydrogeology

There are no published scientific reports that describe the surficial geology or hydrogeology of the Gem City Chemicals, Inc. facility in detail. However, several published sources contain well log information which can be used to interpret the local and regional hydrogeology. Bernhagen (1945) recorded the location and stratigraphy of a number of water wells in Montgomery County. Norris, Cross and Goldthwait (1948) continued this work and described the regional stratigraphy, geologic history and water resources for the county. Norris and Spieker (1966) updated this information by logging additional wells, collecting information on pumping rates, and monitoring the water levels and piezometric surfaces on the different aquifers. All three of these reports include at least some well log information. Graphical well logs and maps of the locations of the logged wells from these studies are included in Exhibit E.

In addition, the Ohio Department of Natural Resources (ODNR), Division of Water maintains a comprehensive file of water well logs, submitted by the well drillers. Periodically, the locations of these wells are verified by the Division of Water, and the resulting located well files are made available for study. A map showing the locations of the located wells in the vicinity of Gem City Chemicals, Inc. and copies of the ODNR well logs are included in Exhibit E.

Several consultants reports have been submitted to the City of Dayton which contain information concerning the subsurface stratigraphy, ground-water levels and the direction of ground water flow. The most relevant of these reports to Gem City Chemicals, Inc. are the Miami Well Field Study, Vol. 1 and the Miami South Source Investigation, both prepared by CH2M Hill.

2.1.1 Estimated Depth to Bedrock and Lithology

The depth to bedrock at the Gem City Chemicals, Inc. facility is estimated to be over 270 feet, based on the depth of several deep wells in the immediate vicinity that do not reach bedrock. The rock type present beneath the facility is mapped as the Ordovician Richmond Group, a sequence of interbedded shales and limestones.

The exact depth to bedrock cannot be determined at this time. Few wells in the immediate vicinity of Gem City Chemicals, Inc. reach bedrock, as adequate supplies of ground water are obtained from shallower wells in the overburden. One well within the City of Dayton Miami South Wellfield is 242 feet deep. The elevation of the bottom of the well of approximately 503 feet above mean sea level (MSL). This well ended in till layer, which is thought to overlie bedrock. A second well, located 1/2 mile southwest of Gem City Chemicals, Inc reached bedrock at an elevation of 470 feet MSL. Based on an estimated bedrock elevation of 490 feet MSL, and a surface elevation of 760 feet MSL, the total depth to bedrock is estimated to be 270 feet. This site, as well as much of downtown Dayton, is located on a buried valley (glacial or preglacial valleys cut into

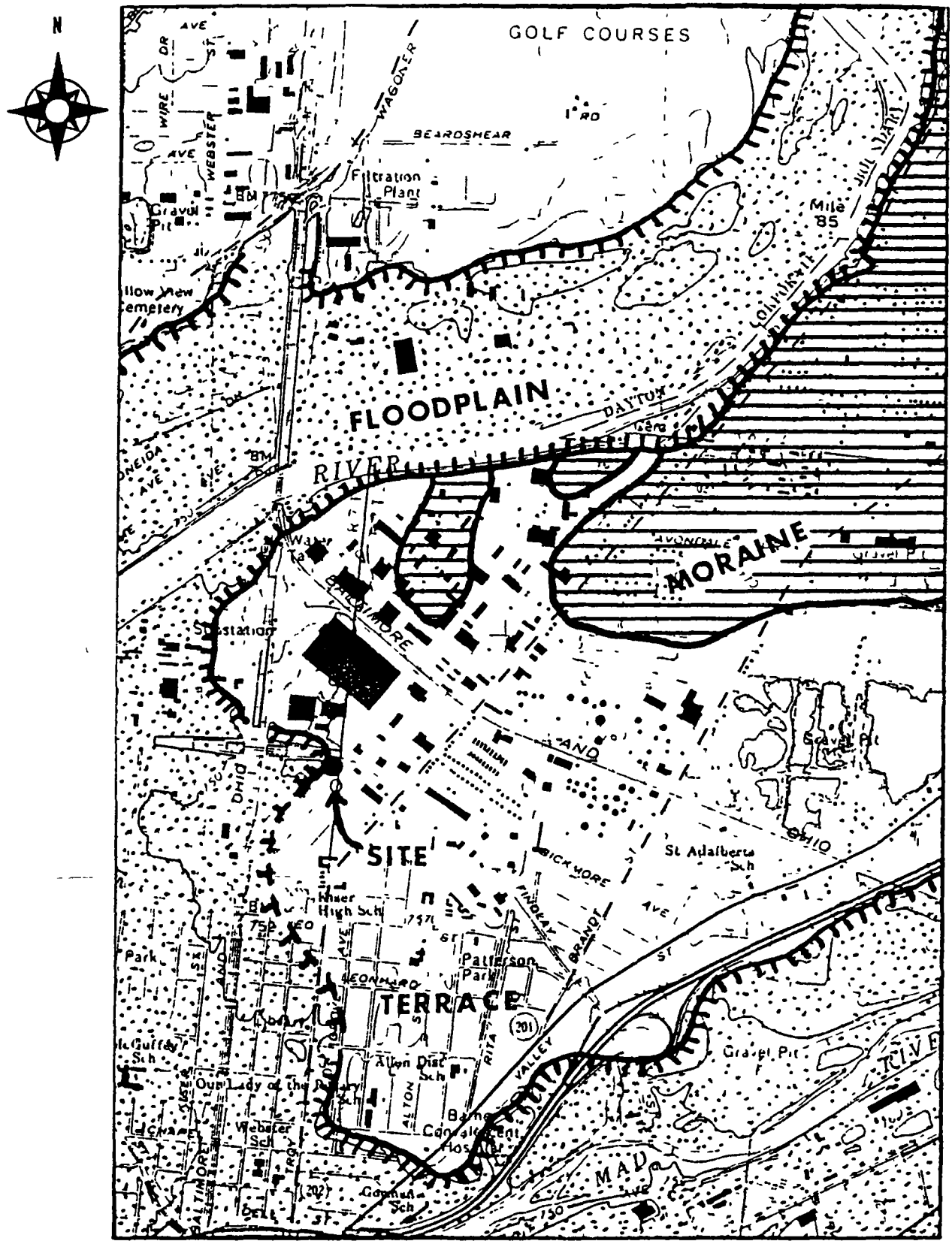
bedrock that were filled with glacial sediments). Bedrock topography mapping, reported in Clinch (1991 a, b) suggests that Gem City Chemicals, Inc. is located near the junction between a tributary, north-south buried valley, and the main buried valley located beneath the City of Dayton, which roughly lies along the path of the modern Mad River.

Although no samples of bedrock from the valley floor beneath Gem City Chemicals, Inc. are available, the bedrock present beneath the site is thought to be the shales and interbedded limestones of the Richmond Group. This assumption is based on the thickness of this group (450 feet) and the elevation of the contact between this unit and the overlying Brassfield Limestone, at about 900 feet MSL. In surface exposures, the Richmond Group consists of soft, bluish colored shale, with 1-5 inch thick interbeds of dense, crystalline limestone, which may make up 25 to 50% of the total rock thickness. Wells drilled in these lithologies rarely yield sufficient water for more than domestic supply, and the local bedrock can be considered an aquitard.

2.1.2 Regional Geomorphology

A sketch map of the geomorphic units in the immediate vicinity of the Gem City Chemicals, Inc. facility is included as Figure 8. The Gem City Chemicals, Inc. facility is located on a flat-topped terrace remnant at an elevation of 760 feet MSL. This terrace is an erosional remnant of the Mad River Outwash, a glacial outwash gravel unit that can be traced through discontinuous terrace remnants northward to Urbana and southward down the Miami River. Generally, the surficial materials in these terrace remnants consist of coarse sand and gravel, although other sediment types may also be present in the subsurface. In some areas, the Mad River Outwash
may be overlain by a thin layer of windblown loess, which is composed of silt sized particles. This terrace remnant is bordered on the north, west and south by the floodplains of the Miami and Mad Rivers. These floodplains have been incised into the Mad River Outwash by approximately 35 feet. Floodplain sediments are approximately 20 feet thick, and are generally composed of finer-grained sand and gravels than those found in the outwash terraces

An end moraine is present to the northeast of Gem City Chemicals, Inc. in Mad River Township. This end moraine was mapped as a thin to thick layer of till overlying sand and gravel by Goldthwait (Norris, Cross and Goldthwait, 1948) and by Forsyth (Norris and Spieker, 1966) The Mad River Outwash was deposited around and above the end moraine, and it is reasonable to assume that the till and outwash of this end moraine may be preserved beneath the outwash gravels at Gem City Chemicals, Inc.



QSOURCE
ENVIRONMENTAL SERVICES INC

Figure 8
Gem City Chemicals
Geomorphic Map
(1" = 2000')

2.1.3 Regional Structural Features

Dayton lies near the crest of the Cincinnati Arch, a broad, gentle anticlinal feature of the bedrock units with an axial trend of approximately N 30° E, and gentle dips on the flanks of the Arch to the northwest and to the east. Measured bedrock dips in Montgomery County are extremely gentle, averaging about 5 feet per mile. The site is near the crest and has little or no dip.

2.1.4 Regional Stratigraphic Units

Regional studies, including Norris and Spieker (1966) and the CH2M Hill reports suggest that the uppermost unconsolidated unit present at the site is a thick, permeable, sand-and-gravel outwash deposit, up to 80 feet thick. Discontinuous till lenses were encountered in some wells in the vicinity of Gem City Chemicals, Inc., at depths of 40 to 50 feet. This unconfined aquifer is generally underlain by a till layer, present as a continuous layer at an average depth of 80 feet at Gem City Chemicals, Inc. The published studies suggest that this till layer may be discontinuous, on a regional scale. At some locations, the till is reported to be a thick, massive unit, while at other sites, the till unit consists of a zone of alternate tills and stratified sand and gravel. At other locations in the region, no till units were detected, either due to non-deposition or due to erosion when the overlying sands and gravels were deposited. The presence or absence of this till layer plays an important role in determining the direction and rate of regional ground water flow.

Regional studies also indicate that a second aquifer unit underlies the till, composed of fine to medium sand, sand and gravel, and fine to coarse gravel. Where thick till separates the surface sand and gravel aquifer from this second aquifer unit, this aquifer is partially confined, and artesian pressures may be present. Where the till layer is thin or missing, the surface aquifer and the second aquifer act as a single, unconfined aquifer. All six deep test borings to date at Gem City Chemicals, Inc. indicate that the till layer is present at the site. In some deeper wells throughout the Dayton area, evidence suggests that there may be other till layers within this second aquifer unit, as well as other, deeper aquifers.

2.1.5 Well Yields

Water well yields for some wells drilled prior to 1960 are published in Norris and Spieker (1966). Water yields for wells within one mile of Gem City Chemicals, Inc. range from a low of 20 gpm at a domestic supply well (well #209) to a maximum of 1000 gpm from a well drilled into the lower sand and gravel aquifer, 0 15 miles west of Gem City Chemicals, Inc. (well #212). Data for most of the production wells in the City of Dayton Miami South Wellfield were not available in Norris and Spieker, with the exception of well T-2. During an aquifer test, it was pumped at a rate of 2,283 gpm. Schmidt (1986) has estimated that the yields in areas adjacent to the Miami and Mad Rivers, to the north, south and west of the site, are typically in excess of 500 to 1000 gpm, or more, while yields from the area immediately adjacent to Gem City Chemicals, Inc. may be from 100 to 500 gpm.

2.1.6 References

Bernhagen, R. J. (1945) Record of wells in Montgomery County: Ohio Water Resources Board Bull. 1

Clinch, J. M. (1991 a) Bedrock Topography Mapping and the Drainage History of Southwestern Ohio; Geological Society of America, Abstracts with Program, Vol. 23, No. 3, p. 8

Clinch, J. M. (1991 b) Bedrock Topography Mapping of Southwest Ohio: Procedures, Results and a few Speculations on the Teays Problem; Ohio Journal of Science, V. 91, No. 2, p. 34

Norris, S. E., Cross, W. P., and Goldthwait, R. P. (1948) The water resources of Montgomery County, Ohio: ODNR Div of Water Bull 12, 83 p

Norris, S. E., and Spieker, A. M. (1966) Ground-Water Resources of the Dayton Area, Ohio: U. S. Geological Survey Prof. Paper 1808, 161 p.

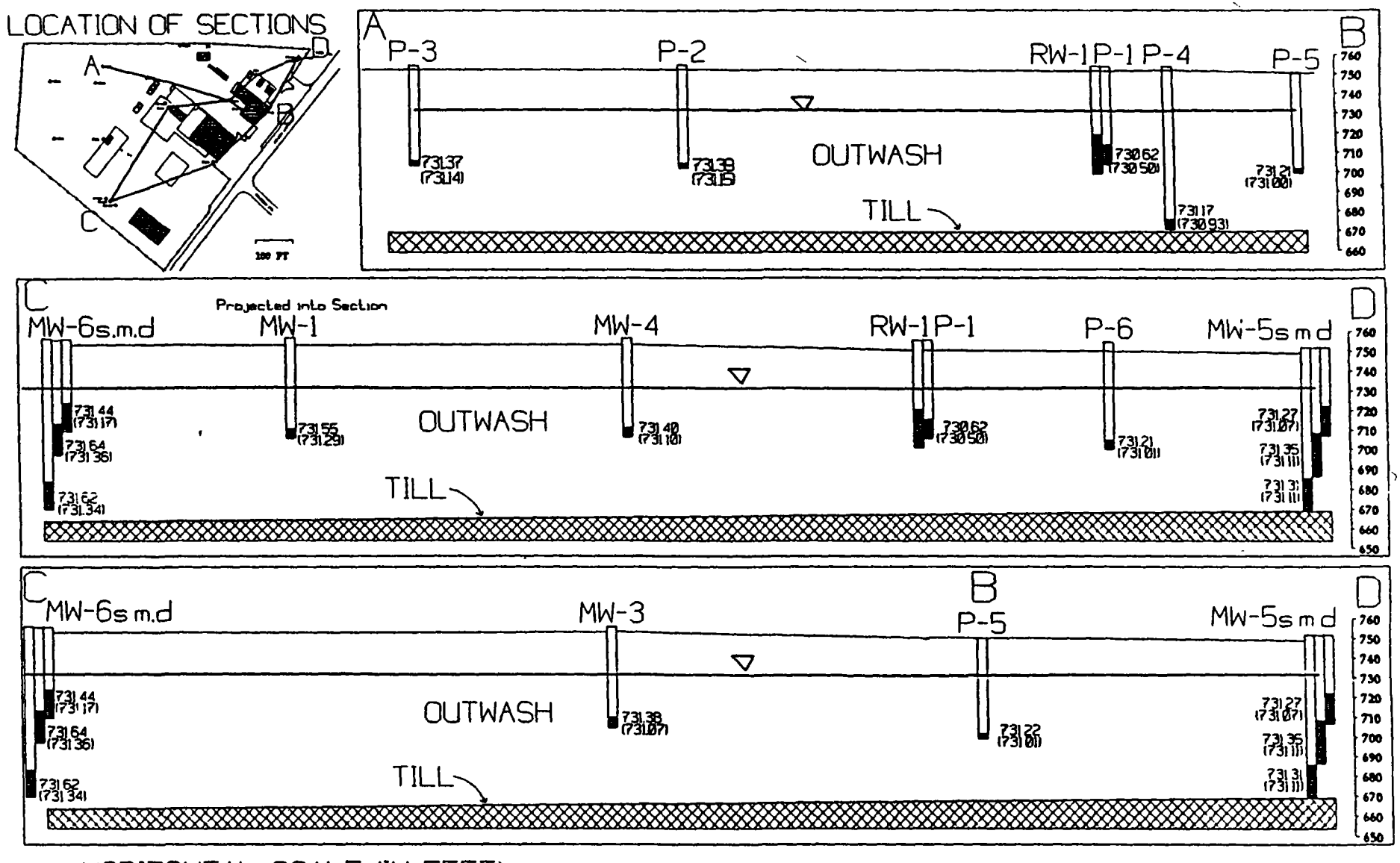
Schmidt, J J., (1986) Ground-Water Resources of Montgomery County; ODNR Division of Water Map

CH2M Hill, Inc. (1986) Miami Well Field Study

CH2M Hill, Inc. (1988) Miami South Source Investigation

2.2 Site Stratigraphy

Since 1988, a total of twenty four test borings at thirteen locations have been drilled at Gem City Chemicals, Inc. Copies of the original boring logs are included as Exhibit F, and copies of the recently-completed test borings are included as Exhibit M. These logs indicate that the surface material at the site consists of between 80 feet and 90 feet of permeable, coarse to fine sand and gravel, overlying a continuous layer of dense, silt-rich till. A thin layer described as a "clay streak", and originally interpreted to be till, was reported in the test borings drilled during installation of the northern well cluster and the production well. This layer is approximately 2 feet thick and was detected between 15 and 19 feet below grade. A layer of oxidized, laminated fine sand and silt was encountered at this depth in several of the newly-completed test borings. Based on direct observations, the layer is interpreted to be a finer-grained fluvial layer within the uppermost layer of outwash materials. Figure 9 shows three cross sections of the site, two northeast-southwest cross-sections, and an east-west cross section.



HORIZONTAL SCALE (IN FEET)
NO VERTICAL EXAGGERATION

0 10 200

FIGURE 9
GEM CITY CHEMICALS, INC
GEOLOGIC CROSS SECTIONS

QSOURCE

Drawn by: J M Clinch, Ph D

Project No. 193004

Date: July 12, 1993

- POTENTIOMETRIC SURFACE BASED ON FEB 8 1993 DATA
- POTENTIOMETRIC VALUES SHOWN ADJACENT TO THE WELL SCREEN POSITION (FEB 23, 1993 VALUES IN PARENTHESES)

Figure 9 also shows the location of the screened interval for each of the wells located within the plane of each cross section, the profile of the potentiometric surface, and the values for the potentiometric surface elevation from each well or piezometer.

Wells W-1, W-2, W-3 and W-4 were drilled by Ohio Drilling Company of Massillon, Ohio, in 1987. The logs for these wells are included in Exhibit F, however, it is difficult to interpret these logs with certainty for two reasons. First, the wells were drilled using cable tool techniques, which do not return the relatively undisturbed samples for logging purposes that split spoon sampling does. Secondly, it is possible that a portion of the material descriptions is inaccurate and may need to be reinterpreted. This is especially apparent for material descriptions that include clay as part of the description. Frequently, when local water well drillers mention "clay" as part of their material descriptions, it signifies a compact, silty glacial till consisting largely of silt, some fine to medium sand, and trace to abundant pebbles, cobbles and boulders. However, local sand and gravel deposits often contain small, but significant, percentages of silt which can discolor wash water from cable tool operations to the extent that the deposit can be misclassified as having significant amounts of "clay" present. Taking these two factors into consideration, it is possible to reinterpret the logs supplied by the Ohio Drilling Company. The surface material in all four wells is sand with varying amounts of pebble to cobble-sized gravel, and trace amounts of silt ("clay" in the original logs). A till layer (described as either "Sand, Clay and Stones" or as "Sand & Clay Hardpan") was detected at a depth of 78 feet below ground surface in W-1, at 75 feet in W-2, and at 83 feet in W-3 Well 4, or W-4, was not drilled to the same depth as the other three wells, and thus no till layer was detected. In addition, a thin layer (5 feet thick) of "Sand & Clay Hardpan" was detected at a depth of 30 feet in W-3 but not in the other wells. There is some suggestion from the language of the sample descriptions that the average grain size of the sand and gravel deposit changes vertically, but these changes cannot be proven with certainty, or matched from well to well.

In previous reports, reference has been made to test borings made by the Ohio Department of Highways Testing Laboratory. These test borings were made in abutments for an overpass along Stanley Avenue. The surface elevation on the boring logs and the total depth of the borings suggest that the entire boring is in fill material. If this is so, no information about the site can be obtained from the borings.

Six test borings were completed at two locations on the site by Moody's of Dayton and G.J.Thelen, under contract to Qsource, in August 1988. At each location, a cluster of borings, which included shallow, intermediate and deep test borings, were drilled and completed as monitor wells. The lithologic descriptions for the shallow and intermediate borings are nearly identical to those for the deep borings, so only the deep boring results will be presented here. All six logs are included in Exhibit F.

Wells numbered W-5S, W-5M and W-5D are located near the intersection of Stanley Avenue and Air City Avenue, northeast of the Gem City Chemicals, Inc. office building Materials detected in this test boring location include. 2 feet of clay (or perhaps silt) topsoil interpreted to be loess, 13 feet of sand and gravel, 2 feet of clay/silt, 63 additional feet of sand and gravel, and at least 5 feet of dense clay (or silt) "hardpan", or till The deep test boring terminated at 85 feet, without penetrating the entire thickness of the till

Wells numbered W-6S, W-6M and W-6D are located southeast of the Gem City Chemicals, Inc. office building. The materials detected in the deep test boring include: 90 feet of sand and gravel, overlying dense clay "hardpan", or till. The size of the sand and gravel changes at different levels in the deep boring, but these changes could not be correlated to the size variations in the other borings at this cluster location.

The presence of clay at the surface, in the thin layer at a depth of 15 feet and at depth in these two deep borings is questionable, as true clay-sized material is rare in Montgomery County. More likely, the material consists of silt, with trace amounts of fine sand and clay. It is also likely that a small percentage of silt was present in the sand and gravel deposits, again based on the typical composition of sand and gravel in southwestern Ohio.

The five vapor extraction wells were drilled to depths of 22 to 22.5 feet, through surface fill, overlying sand and gravel. None of these wells were drilled deep enough to encounter any of the other units found on site. The recovery well was drilled by Moody's of Dayton in March 1989. This well encountered 8 feet of clay and gravel beneath a concrete slab, overlying sand and gravel to a depth of 65 feet. A two-foot thick streak, or layer, of "clay" was observed at a depth of 19 feet. A copy of the ODNR well log, containing the stratigraphic information, is included in Exhibit F.

Three shallow and five deep test borings were completed at Gem City Chemicals, Inc. during January 1993. Logs for these test borings are included in Exhibit M. The interpretation of these logs was aided by the presence of an open excavation, made by the City of Dayton Department of Water at the intersection of Melberth and Air City Drive, for the purpose of completing a sewer connection. Features visible from the ground surface within this pit are described in a pit log, which is also included in Exhibit M.

Based on these newly-acquired logs, the following units are present beneath the Gem City Chemicals, Inc. facility.

1) The surface of the property is covered by a thin, disturbed layer composed of fine-grained loess, coal fragments and regraded fill materials. This layer is typically thin, from one to four feet thick across the site. Backfill materials, consisting of well-sorted medium sand were present at the site of test boring P-2. Based on material supplied by Gem City Chemicals, Inc., and included in Exhibit A, this was the site of five underground storage tanks which were removed in 1986.

2) The uppermost natural materials present at the site consist of a sand-and gravel deposit, interpreted to be deposited within a braided-stream channel. Materials recovered from the split spoon samples consisted of medium-to-coarse sand and small pebbles, grading downward into coarser-grained granules and pebbles. Coarser pebbles (to 4" diameter) were brought up in the auger flights, and some stones up to 6" long were observed in the excavated sewer connection pit. No bedding or structure was visible in the split spoon samples, due to disturbance of the sample while the spoons were driven Based on the pit exposure, this uppermost unit is crudely bedded, with alternate, planar beds consisting of coarse

(2" to 6") clasts with interstitial fine sands and silt, and laminated coarse sands, granules and pebbles Interstitial spaces within the coarse pebbles and cobbles are typically filled by medium-to-fine sand and little silt, interpreted to have been deposited as fillings of the open-work gravels. The thickness of this uppermost sand-and-coarse-gravel channel deposit is approximately 20 feet.

3) A thin, oxidized layer of fine sand to silt was encountered in test borings P-2, P-3, and P-4 at a depth of approximately 20 feet. The unit is faintly to prominently laminated. A "clay streak" or "silty clay" layer was observed in test boring logs for the MW-5 cluster and the recovery well RW-1. Where present, the thickness of the layer varies between 6 inches and 2 feet. The unit is interpreted to be a slack-water deposit formed in an abandoned channel or shallow lake, present on the surface of the outwash plain. This unit was locally truncated or completely eroded during deposition of the coarse-grained channel deposit described above.

4) From a depth of approximately 20 feet to the bottom of the uppermost aquifer, the outwash deposit is composed of interbedded coarse sand to granules, with subordinate amounts of pebbles, and trace silt. While no bedding structures were visible within this unit, evidence for both coarsening-upward and fining-upward cycles, up to 1 foot thick were observed. Coarser pebbles did not appear to be present; there were few cases where high blow counts attributable to large clasts were recorded, and the total recovery within the split spoon samples was generally high.

5) A very compact, silty lodgment till was encountered at a depth of 82 feet in test boring P-4. This till consists of dark gray silt, with little fine to coarse sand and trace pebbles, and is massive to sheared There is no evidence for water flow through the till along the shears, while the overlying granular materials were saturated, the recovered samples of till contained no free water.

2.3 Hydraulic Connections

Based on the cross sections shown in Figure 9, all monitor wells are screened within a single aquifer unit. This unconfined aquifer extends from the ground-water table to a low-permeability till horizon, which is located at a depth of between 75 and 90 feet below the ground surface. The till was encountered in all six of the borings made on-site that reached a depth of 80 to 90 feet. The thickness of this till layer beneath the site is unknown, as no borings were advanced through the entire till thickness However, the till is at least 11 feet thick at the site of MW-1. A nearby production well was drilled through the till, which was reported to be 18 feet thick. Based on the test boring information available, the till layer appears to be continuous across the actively-used portion of the site. In addition, examination of the publicly-available well logs for properties within 1/2 mile of the site shows that a thin-to-thick till layer was detected at depths of 80 to 100 feet at all sites where wells were installed at these depths or greater, which suggests that the till layer is continuous under the entire site and within 1/2 mile of Gem City Chemicals, Inc.

A thin, finer-grained sandy silt layer (1-2 feet) was detected within this aquifer in several of the borings on-site. About half of the well logs for properties north of the Gem City Chemicals, Inc. facility and within 1/2 mile record the presence of a shallow layer, generally assumed to be a till at similar elevations. Where present, the layer is generally above the ground-water table. The presence or absence of this layer may affect recharge flow directions and rates within this unconfined, surface aquifer on a local or regional scale. The absence of the discontinuous layer over most of the site suggests that it has no major effect on local flow directions or rates.

Regional studies suggest that a second aquifer is present beneath the till layer beneath Gem City Chemicals Inc., and that recharge into the underlying aquifer is through gaps or discontinuities within the till layer. Based on the available on-site data, and on well logs for sites in the vicinity, there is no evidence of a gap in the till layer within 1/2 mile of the site. Therefore, according to the available data, there is no apparent local connection between the unconfined surface aquifer and the deeper, confined aquifer.

2.4 Ground-Water Velocity and Horizontal and Vertical Flow Directions

Contour maps of the upper aquifer ground-water surface presented in the Norris and Spieker (1966) and CH2M Hill reports, cited earlier, suggest that the regional flow direction was originally towards the southwest, parallel to the flow of the Miami River, but is now to the north, due to the influence of the City of Dayton Miami South Wellfield, which was installed in the early 1960's. This regional flow can be modified, based on the influence of nearby pumping wells, or by variations in local recharge Water levels measured on-site prior to installation and activation of the recovery well indicate a fairly flat water table, with only a slight gradient. The pre-pumping levels suggest ground-water flow in the upper aquifer to the northeast. The ground-water table gradient across the site at that time was 0.0004 ft/foot (2 feet/mile). The ground-water flow direction in the upper aquifer is now radially inward, towards the recovery well, as shown by the weekly potentiometric surface measurements made since the recovery well operations began. The present potentiometric surface gradient in the area surrounding the pumping well is approximately 0.002 feet/foot.

Relatively little aquifer testing has been done in the vicinity of the Gem City Chemicals, Inc. Regional-scale and local-scale modelling studies have generally been conducted by assuming values for hydraulic conductivity, storativity, saturated thickness, based on earlier reports, and adjusting the conductivity values during a model calibration phase.

Values for the aquifer parameters obtained through this process as part of a model developed by CH2M Hill in 1972, and used to plan for development at the Miami South Well Field are:

Upper Aquifer
- Hydraulic Conductivity - 0.003 ft/sec (260 ft/day, 2021 GPD/ft^2)
- Storativity - 0.2 ft/ft

Till Layers
- Hydraulic Conductivity - 0 44x10^{-6} ft/sec (0.04 ft/day, 0.3 GPD/ft^2)
- Storativity - 0 ft/ft

Lower Aquifer
- Hydraulic Conductivity - 0 001 ft/sec (87 ft/day, 710 GPD/ft^2)
- Storativity - 0.00001 ft/ft

This model assumed a 50 foot thick saturated zone in the upper aquifer, and variable thicknesses for the till and lower aquifer, consequently the transmissivity values were not calculated directly. All values were calculated assuming that each of the layers within the model are homogeneous and isotropic. Due to the directions of flow that are calculated from this model, the calculated hydraulic conductivities are likely to reflect the horizontal conductivity in the "upper" and "lower" aquifers, and the vertical conductivity through the till. Considerable local variability from these values is likely across the region.

During the pump test conducted at Gem City Chemicals, Inc. on February 21, 1990, the recovery well was pumped at a rate of 340 gallons per minute, and the water level in a piezometer installed 3 5 feet away from the pumping well was monitored. The drawdown was 0.75 feet after 450 minutes of pumping. This gives a value for transmissivity of 52,900 ft^2/day or 395,000 gpd/ft. and conductivity of 0.226 cm./sec (755 ft./day). This value is approximately 3 times the average value calculated from model studies. The effective porosity of the silty sands and gravels found in the Dayton area is estimated to be 20%. The storativity is estimated to be 0.10 to 0.20, based on the estimated effective porosity.

Based on these values, the pre-pumping ground-water flow velocity is estimated to be approximately 1.2 feet per day. The current flow velocity in the area surrounding the pumping well is estimated to be 6 4 feet per day.

$$V_{prior} = \frac{K\frac{\Delta h}{\Delta l}}{n_e} = \frac{755\frac{ft.}{day} * 0.0004\frac{ft.}{foot}}{0.20} = 1.2\frac{ft.}{day}$$

$$V_{pumping} = \frac{K\frac{\Delta h}{\Delta l}}{n_e} = \frac{755\frac{ft.}{day} * 0.002\frac{ft.}{foot}}{0.20} = 6.4\frac{ft.}{day}$$

The potentiometric surface elevations have been measured in the two well clusters located at the northeast and southwestern limits of Gem City Chemicals, Inc The levels measured in the three wells in each cluster are similar, which indicates that the ground-water flow is nearly horizontal at both locations.

Since the recovery well RW-1 is not screened across the entire saturated thickness of the upper aquifer, Gem City Chemicals, Inc. was required to install a single piezometer screened at the bottom of the aquifer and located near the recovery well. Piezometer P-4 was installed and screened at the base of the aquifer, at a depth of between 77 and 82 feet. Potentiometric levels measured in this piezometer were to be compared to the values obtained from P-1 (located adjacent to the recovery well screen), in order to evaluate whether or not water from the base of the aquifer was being captured by the recovery well. On February 8, 1993, the potentiometric surface value measured from P-4 was 731.17 feet msl, while the value measured from P-1 was 730 62 feet msl. Therefore, there is a localized upward flow present in the area immediately surrounding the recovery well, induced by water withdrawal from the partially-penetrating recovery well.

Due to the presence of the till layer separating the valley fill deposits into "upper" and "lower" aquifer systems, the direction of ground-water flow must be evaluated separately for each of the two layers. As described above, a low-permeability till layer is present beneath Gem City Chemicals, Inc. and for at least 1/2 mile surrounding the site. This till layer effectively isolates the uppermost, unconfined aquifer at Gem City Chemicals, Inc. from any deeper, confined aquifers that may be present.

Ground-water flow directions in the lower aquifer have changed considerably during the past thirty years, due to changes in water usage in the surrounding areas. Potentiometric maps compiled by Norris and Spieker (1966) for 1959 and 1960 (prior to the time when the Miami South Wellfield began operations) show ground-water flow to the southwest, towards a wide cone of depression developed beneath the central business district of Dayton, and also towards industrial facility water supply wells to the southwest. A major cone of depression had developed beneath the Miami South Wellfield following the beginning of production of water from the wellfield, in the early 1960's. Maps compiled by CH2M Hill for 1972 and for 1986 show this cone of depression. The location of Gem City Chemicals, Inc appears to be on or near a divide between these two cones of depression, and the direction of ground-water flow at the site could be either to the north or to the south, or it could fluctuate depending on recharge

variations and variability in the pumping rates at either the industrial water supply wells or in the city wellfields

2.5 Evaluation of Factors Affecting Ground-Water Movement

Ground-water movement in this part of Dayton is either towards the Miami River (north and west of the site) or towards the Mad River (south of the site). The ground-water divide between these two flow systems has been near or under this site. The gradients in either direction are very low, and the divide can shift.

Based on the historical potentiometric surface maps from Norris and others (1966) and the CH2M Hill reports and on the data generated as part of the ongoing remediation efforts at Gem City Chemicals, Inc., the factors affecting local ground-water movement include variable pumping rates by major ground-water users surrounding the site, variations in local recharge, and pumping the on-site recovery well.

Historical data suggest that the flow direction in the upper aquifer was initially to the southwest, parallel to the Miami River flow direction, and that the broad, poorly-defined divide between southwest and northward flow was located to the north of the site. Flow directions appear to have changed following the installation of the City of Dayton Miami South Wellfield in the early 1960s. The ground-water flow divide originally located north of the site shifted to the south, and flow directions at the site changed, shifting to the northeast. Variations in the pumping rate at the wellfield may cause changes in the flow direction at the site in the future The potential for future shifts in the position of ground-water divides is high because the gradient across the area surrounding the site is nearly flat.

Additional changes in ground-water flow directions or rates may be caused by variations in the amount of on-site recharge, which can be inferred from the data shown in Figure 6. According to the weekly potentiometric surface measurements made on-site since March 1990, the elevation of the ground-water surface has varied by approximately 12 feet, reaching a high of slightly over 730 feet MSL in January 1991 and a low of slightly over 718 feet in February 1992. The variations reflect changes that normally occur on a yearly cycle in the local unconfined aquifers, with a rising ground-water table during the winter and spring and a falling ground-water table during the summer and fall. This natural cycle can be modified by short-term droughts or periods of excess moisture; the lows in December through the beginning of March correspond to a moderate drought in southeastern Ohio, while levels are currently rising (in July 1992) in response to higher-than-normal rainfall. On this small site, variations in recharge do not appear to affect the direction of ground-water flow to the recovery well. However, they do affect the overall elevation of the ground-water table and the total saturated thickness of the aquifer, and may have a minor effect on the size of the ground-water cone of depression.

The most important factors affecting ground-water movement on the site are the presence of the recovery well in the center of the site, and the removal and treatment of approximately 300 gallons of water per minute. The result of the pumping has been the formation of a broad, shallow cone of depression on-site This cone of depression is clearly evident in the potentiometric map shown as Figure 7, in the selected potentiometric maps included as Exhibit C, and in all of the potentiometric maps submitted to the OEPA as part of the quarterly

remediation monitoring results The presence of the cone of depression is also evident in Figure 6, a plot of the potentiometric surface elevation values at the monitor wells and piezometer P-1 with time. According to this chart, the potentiometric surface elevation at the piezometer (located adjacent to the recovery well) is nearly a foot lower at any point in time than that for any of the monitor wells on-site.

The creation of this cone of depression has led to a radially-inward flow pattern, towards the recovery well, and present beneath the actively-used portions of the site. The sidegradient limit of the cone of depression induced by the recovery well extends beyond the location of P-2, and therefore, the zone of capture extends across the entire actively-used portion of the facility. Qsource believes that the zone of capture is normally beyond P-2 for a couple of reasons. Contour lines on the potentiometric surface are not expected to make sharp angles for sand and gravel aquifers and broad curves would cover more of the area. Also, those initial readings represented the configuration of the cone of depression during the time of highest water levels. As water levels fall, the cone of depression will spread. Water level records for this site demonstrate a 14 foot decrease in water levels (21% of the aquifer thickness) is expected from these high levels. In fact, since the time of the initial readings, potentiometric levels at P-3 have been consistently higher than at P-2. This induced flow pattern means that the site no longer contributes water to the regional flow system downgradient of the site. All precipitation that infiltrates into the ground and percolates downward to the ground-water table within the radius of influence now flows inward, toward the recovery well. In addition, all ground water that flows towards the cone of depression from upgradient sites will also be captured by the recovery well. Any contaminants that may be present from upgradient sources will be detected in the monitor wells, pumped out of the aquifer at the recovery well, and treated in the air stripper Thus, while the site will have no effect on the ground-water quality downgradient of the cone of depression, due to the remediation efforts, the site is affected by changes in ground-water quality located upgradient of the site.

While it is theoretically possible that chlorinated hydrocarbons might migrate in different directions than the ground-water flow directions, the VOCs present in the ground water beneath the Gem City Chemicals, Inc are migrating with the ground water and are being contained and remediated by the recovery well and air stripper system. Chlorinated hydrocarbons may migrate in different directions than the ground-water flow, due to the density difference between the compounds and water and due to the relatively low solubility of the compounds in water. Tetrachloroethene, trichloroethene, 1,1,1-trichloroethane and most of their breakdown products have densities higher than that of water and have solubilities of between 0.15 and 9 parts per thousand. Due to the density contrast and low solubility, these compounds are known as Dense, Non-Aqueous Phase Liquids or "DNAPLS". In cases of massive, catastrophic releases, these compounds tend to sink to the bottom of an aquifer system, and migrate downslope as a separate, non-aqueous phase. The saturated thickness of the aquifer usually contains relatively constant concentrations of the compounds, present as separate droplets trapped between soil particles, at a concentration known as the residual saturation.

However, the site history, the chemical sampling performed during the installation of the first four monitoring wells, and the long-term monitoring of the MW-5 and MW-6 cluster indicate that no separate phase is present beneath Gem City Chemicals, Inc No massive release of chlorinated solvents is reported to have taken place In addition, as shown in Table 4, a

comparison between the solubility of the chlorinated hydrocarbons and the maximum concentrations ever measured in the on-site monitoring wells, the concentrations of VOCs present in the ground water are far below the maximum solubilities for the compounds. This indicates that the compounds are dissolved and are moving with the ground water and are not migrating as a separate phase. Finally, the concentrations of chlorinated solvents are generally highest at shallow or intermediate depths and decline downward to near non-detect values near the bottom of the aquifer. The concentrations of trichloroethene were monitored during the drilling and installation of MW-1 through MW-4. While the total depth to the bottom of the aquifer was between 75 and 80 feet at each well site, the maximum TCE concentration was found at a depth of about 45 feet. Either the shallow or the intermediate-depth wells at the MW-5 and MW-6 cluster have historically had the highest VOC concentrations. These results indicate that the VOCs are traveling as a dissolved phase within the ground water, and that the ground-water flow direction can be used to predict the migration direction of the VOCs. Those VOCs present at high concentrations immediately beneath the ground water table are likely to have originated at Gem City Chemicals, Inc. The cases where the water samples from the intermediate-level wells have higher concentrations than those for samples from either shallower or deeper level wells on the upgradient side of the property probably indicate migration of the compounds from off-property locations.

Compound	Solubility (ug/l at a given temperature)	Specific gravity (water = 1 00)	Maximum concentration observed at GCC (ug/l)
Chlorinated Ethanes			
1,1,1-Trichloroethane	4,400,000 at 20° C	1 35	1830
1,2-Dichloroethane	8,690,000 at 20° C 9 200,000 at 0° C	1 25	120
1,1-Dichloroethane	5,500,000 at 20° C	1 174	99
Chlorinated Ethenes			
Tetrachloroethene	150,000 at 20° C	1 626	848
Trichloroethene	1,100,000 at 20° C	1 46	597
cis-1,2-Dichloroethene	800,000 at 20° C	1 28	2000
trans-1,2-Dichloroethene	600,000 at 20° C	1 26	24
1,1-Dichlorooethene	400,000 at 20°C	1 218	152
Vinyl Chloride	1 100,000 at 20° C	0 9121	9

3.0 EFFECTIVENESS OF THE GROUND-WATER MONITORING SYSTEM

3.1 Number of Wells

A total of eleven wells and six piezometers have been installed at Gem City Chemicals, Inc. as part of the ground-water monitoring system. Ten monitor wells have been installed at six sites at Gem City Chemicals, Inc. A single, large diameter recovery well has also been installed, and a piezometer is located adjacent to the recovery well, in order to monitor the potentiometric surface level. An additional five piezometers were installed in January 1993 to further delineate the extent of the ground-water cone of depression and demonstrate that no further off-property migration of contaminants is occurring.

3.2 Well and Piezometer Locations

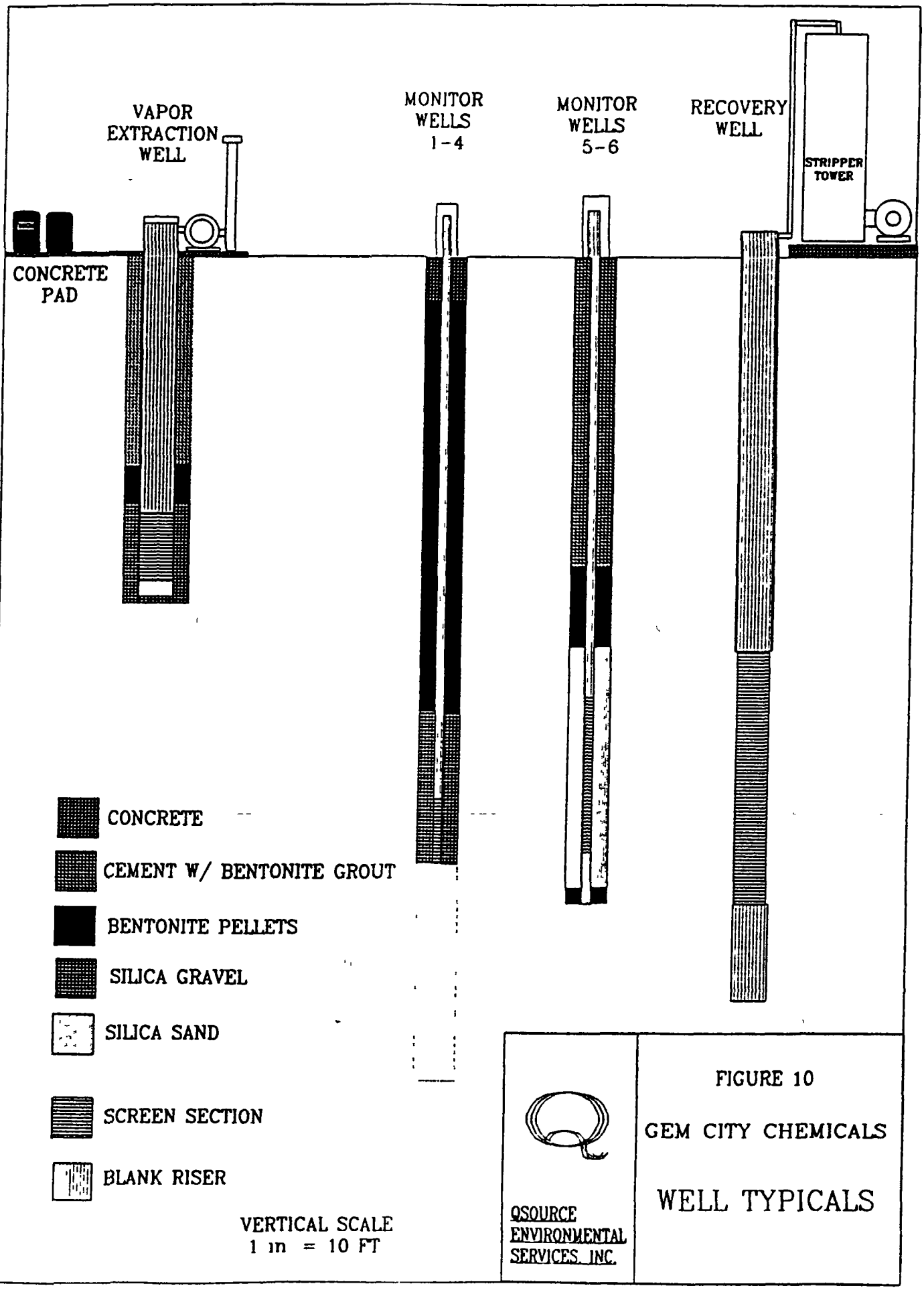
The location of the monitor wells, recovery well and piezometers are shown in Figure 5. Four single wells are located surrounding the portion of the site used for chemicals storage and transfer, and two clusters of three wells each are located to the northeast and southwest of the active portion of the site A single recovery well is located near the center of the site, and a piezometer has been installed adjacent to the recovery well in order to monitor the drawdown induced by the recovery well. Additional piezometers are located to the west, north and east of the recovery well in order to provide additional potentiometric surface data. A single piezometer is located near the recovery well, and screened at the base of the aquifer, to demonstrate that the recovery well is withdrawing water from the base of the aquifer.

3.3 Well and Piezometer Construction

As-built diagrams for the monitor wells, the recovery well and the piezometers are included in Exhibit G and M. Figure 10 shows the typical construction details for the monitor wells, the recovery well and the vapor extraction wells installed at the site. Table 5 is a summary of the relevant information concerning each of the wells installed on the site, including the elevation of the top of casing, the total depth and screened interval, and the date installed.

3.4 Potentiometric Maps

As part of the ongoing monitoring program instituted by Gem City Chemicals, Inc., the depth to water and potentiometric surface elevation measurements have been determined weekly since March 1990. These levels are tabulated in Exhibit C. Potentiometric maps have been constructed from this data, using the potentiometric surface elevation data from piezometer P-1, monitor wells MW-1 through MW-4, and MW-5m and MW-6m. The potentiometric surface elevation determined from the intermediate well at each cluster was chosen for contouring because the screened interval at these two wells most closely approximates the screened interval at the other monitor wells, and because the ground water appears to flow horizontally.



QSOURCE ENVIRONMENTAL SERVICES, INC.

FIGURE 10

GEM CITY CHEMICALS

WELL TYPICALS

TABLE 5

SUMMARY OF MONITOR WELL INFORMATION

WELL ID	TOC ELEVATION	GROUND ELEVATION	ELEVATION PROTECTIVE STEEL RISER	COLLECTION ZONE	DRILL DEPTH	AV DEPTH TO WATER FROM TOC	AVERAGE WATER ELEVATION	WELL CONSTR MATERIAL	CASING DIA	DATE INSTALLED	DRILLER
MW 1	754 87	752 63	756 28	42 47'	89	30 01	725 47	GS & SS	2"	11/87	Ohio Drill
MW 2	753 69	751 28	754 82	42 3 47 3	81	29 91	725 32	GS & SS	2"	12/87	Ohio Drill
MW 3	755 88	753 94	757 25	43 5 48 5	85	31 22	725 34	GS & SS	2"	12/87	Ohio Drill
MW 4	754 95	751 05	756 22	42 47	45'	30 16	725 41	GS & SS	2"	1/88	Ohio Drill
MW 5s	751 20	748 51	751 37	27 42	50	25 91	725 29	PVC & SS	2"	8/88	O J Thelen
MW 5m	751 53	748 68	751 61	40 5 62 5	60	26 22	725 31	PVC	2"	8/88	O J Thelen
MW 5d	751 16	748 47	751 31	63 5 79	85	25 90	725 26	PVC & SS	2"	9/88	Moody s
MW-6s	754 97	751 04	755 75	29 5 44	48	29 42	725 55	PVC	2"	9/88	O J Thelen
MW 6m	755 55	752 86	755 54	40 56	60	29 18	725 67	PVC	2"	8/88	O J Thelen
MW 6d	755 77	753 15	756 09	70 84	90	30 11	725 66	PVC	2"	9/89	Moody s
RW 1	751 47	n/a	n/a	30 50	65	n/a	n/a	CIS	8"	9/89	Moody s
P 1	754 51	n/a	none	34 50	n/a	29 81	724 70	PVC	2"	1/89	Moody s
P 2	754 57	n/a	n/a	48 0 50 2	50	23 18*	731 39*	PVC	1 1/4"	1/93	Moody s
P 3	754 29	n/a	n/a	46 6 48 8	50	22 92*	731 37*	PVC	1 1/4"	1/93	Moody s
P 4	751 56	n/a	n/a	47 6 49 8	82	22 39*	731 17*	PVC	2"	1/93	Moody s
P 5	749 93	n/a	n/a	76 0 81 0	50	18 71*	731 22*	PVC	1 1/4"	1/93	Moody s
P 6	752 91	n/a	n/a	47 6 49 8	50	21 70*	731 21*	PVC	1 1/4"	1/93	Moody s
VE 1	752 90	n/a	none	19 5' 22	22 3	20 792**	732 108**	PVC	4"	10/88	Mathes
VE 2	752 85	n/a	none	19 5 22	22'	20 146**	732 704**	PVC	4"	10/88	Mathes
VE 3	753 75	n/a	none	19 5 22	22 5	21 333**	732 417**	PVC	4"	10/88	Mathes
VE 4	753 98	n/a	none	19 5 22	22	20 811**	733 147**	PVC	4"	10/88	Mathes
VE 5	754 33	n/a	none	19 5 22'	n/a	21 146**	733 184**	PVC	4"	10/88	Mathes

* on 02-08 93
** on 06-30-89
n/a = not available

A comparison between potentiometric surface data for each of the wells in the two well clusters shows that there is little difference in the potentiometric surface elevations, and no difference in the resulting potentiometric surface maps.

The potentiometric surface maps and supporting data have been submitted to the Ohio EPA for review on a monthly basis since early 1990. Selected examples of the 120 maps submitted to the OEPA are included as Exhibit D Figure 7 is a potentiometric surface map prepared using data from the existing monitoring well network and the newly-installed piezometers.

3.5 Effectiveness of the Ground-Water Recovery System

The effectiveness of the control of off-site migration is evaluated using potentiometric surface maps. The newly-compiled potentiometric map, shown as Figure 7, the example maps included as Exhibit D and the 120 potentiometric maps, compiled weekly and submitted to the Ohio EPA, demonstrate that the recovery well installed on-site has induced a cone of depression that extends beneath a substantial portion of Gem City Chemicals, Inc., including all areas of past and current chemical storage and transfer. A plot of potentiometric surface elevations with time, included as Figure 6, shows that the water level in P-1, adjacent to the pumping well has consistently been as much as one foot lower than levels measured in other wells on-site. This demonstrates that the cone of depression beneath the site has been consistently maintained for over two years, independent of the natural fluctuations in ground-water levels during that period of time. The potentiometric maps, the ground-water flow directions determined from these maps, and the plot of potentiometric surface elevations with time demonstrate that the ground-water control system is successful in preventing the off-site migration of ground water

3.6 Ground Water Chemical Monitoring Effectiveness

The ground-water quality beneath Gem City Chemicals, Inc. is monitored by periodic sampling of all of the monitor wells and analysis of the samples for VOCs. The four then existing monitor wells were initially sampled in May 1988. All ten monitor wells were sampled in September 1988, following installation of the MW-5 and MW-6 well clusters. All wells were resampled in August 1989. Quarterly sampling and analysis was initiated in 1990 and continued for one year. All wells are currently sampled on a semi-annual basis, with one sample taken in late winter/early spring, when ground water levels are highest, and another sample taken in late autumn, when ground water levels are lowest. The analytical results obtained to date are summarized in Table 2. Copies of all laboratory results have been submitted to the OEPA for review, attached to the monthly progress reports Based on the distribution of the monitor wells, these data adequately monitor the water quality for the entire area beneath the past and currently-active chemical storage and transfer areas.

In order to evaluate the changes in water quality with time across the site, charts have been prepared showing the concentrations of the chlorinated ethane family (1,1,1-trichloroethane and its' breakdown products) and the chlorinated ethene family (tetrachloroethene, trichloroethene and their breakdown products) in each well with time. For the sake of clarity, three separate charts have been prepared for each chemical family. The first chart for each chemical family shows the concentrations in water samples from wells located upgradient from the actively-used portion of the site, and regionally upgradient from the recovery well (MW-1 and the three wells

in the MW-6 cluster). The second chart for each chemical family shows the concentrations in water samples from the two wells within the actively-used portion of the site, and regionally upgradient from the recovery well (MW-3 and MW-4). The third chart for each chemical family shows the concentrations in water samples from wells regionally downgradient from the facility, and regionally downgradient from the recovery well (MW-2 and the three wells in the MW-5 cluster). As shown by the potentiometric surface mapping in Figure 7, all of the monitoring wells are now "upgradient" from the recovery well, due to the size of the cone of depression and zone of capture induced by the recovery well. An arrow on each of these charts indicates the time that the recovery well and treatment system began operations. In order to facilitate comparisons, the vertical scale on all three of the charts is the same.

Figure 11 shows the charts for concentrations of chlorinated ethanes, while Figure 12 includes the charts for concentrations of chlorinated ethenes. In addition, similar charts were prepared for each of the major chlorinated compounds that are typically found. A line representing the Maximum Contaminant Level (if established) in Figures 13, 14 and 15 show the concentrations with time of 1,1,1-trichloroethane, 1,2-dichloroethane and 1,1-dichloroethane. Figures 16, 17, 18 and 19 show the concentrations of tetrachloroethene, trichloroethene, total 1,2-dichloroethene and 1,1-dichloroethene. Total 1,2-dichloroethene was plotted instead of plotting the two separate isomers of 1,2-dichloroethene, because much of the historic data were reported as total values. Inspection of the more recent analytical data suggests that over 90% of the total 1,2-dichloroethene is composed of the cis-1,2-dichloroethene isomer. However, for comparison purposes only, the total 1,2-dichloroethene value is compared to the MCL for trans-1,2-dichloroethene, the isomer with the lower MCL.

These charts of concentrations of solvents with time clearly indicate that the ground-water recovery and treatment system at the Gem City Chemicals, Inc. facility is effectively preventing the further off-property migration of VOCs and has made progress in remediating the ground water beneath the facility.

The data also indicate that remediation efforts may be hampered by the presence of elevated levels of VOCs detected in the upgradient wells, and presumed to be flowing under the Gem City Chemicals, Inc. facility from unknown, upgradient sources. These conclusions are supported by the following evidence.

1) The concentrations of chlorinated ethanes and ethenes were originally highest in the shallow well of the MW-5 cluster, prior to the onset of remediation. These levels were falling, which may have been due to the monitoring the passing of a high concentration slug that was moving through the site in the aquifer. Following installation of the recovery well, ground water flow has locally been reversed at the MW-5 cluster and is now flowing towards the recovery well, as shown by the potentiometric surface maps. Following the start of remediation, the chlorinated ethane and ethene levels initially rose in samples from both MW-5s and MW-5m, and then fell. This may have been evidence that the recovery system was able to pull back part of the slug that has passed. The water now entering the site has lower concentrations of chlorinated solvents than are present in wells on-site and have concentrations comparable with, or lower than concentrations found in the upgradient wells The chlorinated solvent

concentrations are now typically lower in samples from MW-5s than in samples from MW-5m. The most likely explanations for this pattern of continuing decrease in concentration with time are 1) a steady dilution due to the inflow of regionally downgradient and sidegradient ground water into the recovery system, and 2) dilution and downward flushing of VOCs in the shallow ground water due to infiltration within the zone of capture at and beyond MW-5 cluster.

2) Moderate concentrations of 1,1,1-trichloroethane and trichloroethene, at levels above the MCLs, have been present in samples from the upgradient wells, MW-1, and shallow and intermediate level wells in the MW-6 cluster. However, the concentrations of these compounds have risen substantially then fallen over the course of the last three sampling events. In addition, tetrachloroethene and several breakdown products (dichloroethenes and dichloroethanes) have also been detected in samples from these wells These wells are regionally upgradient from the actively-used portion of the site, and the MW-6 cluster is located only 50 feet from the southwestern property limit. The best explanation for the observed pattern of VOC concentrations with time is that the chlorinated solvents detected in these wells originate from an unknown, upgradient source. During these sampling events, the ground water quality in these upgradient wells is worse than that in the regionally downgradient wells.

3) The chlorinated solvent concentrations measured in samples from MW-3 and MW-4 have fluctuated with time, with neither an increasing or decreasing trend apparent until recently. Historically, the solvent content in samples from MW-4 have been below the MCLs for all compounds except for trichloroethene. Over the past two sampling periods, the VOC concentrations in samples from both wells has risen, with an especially noticeable rise in the content of chlorinated ethanes (1,1,1-TCA) in samples from MW-4. As was the case for the regionally upgradient wells, the increase in concentrations was also characterized by increases in the concentration of tetrachloroethene and breakdown products (dichloroethenes and dichloroethanes). While these two wells are located within the portion of the facility where solvents are, or have been stored, they are also located between the regionally upgradient wells and the recovery well. It is likely that the same upgradient source is responsible for the increase in VOC content in MW-3 and MW-4, as well as in MW-1 and the MW-6 cluster.

Figure 11 - Gem City Chemicals, Inc.
Sum of Concentrations of Chlorinated Ethanes

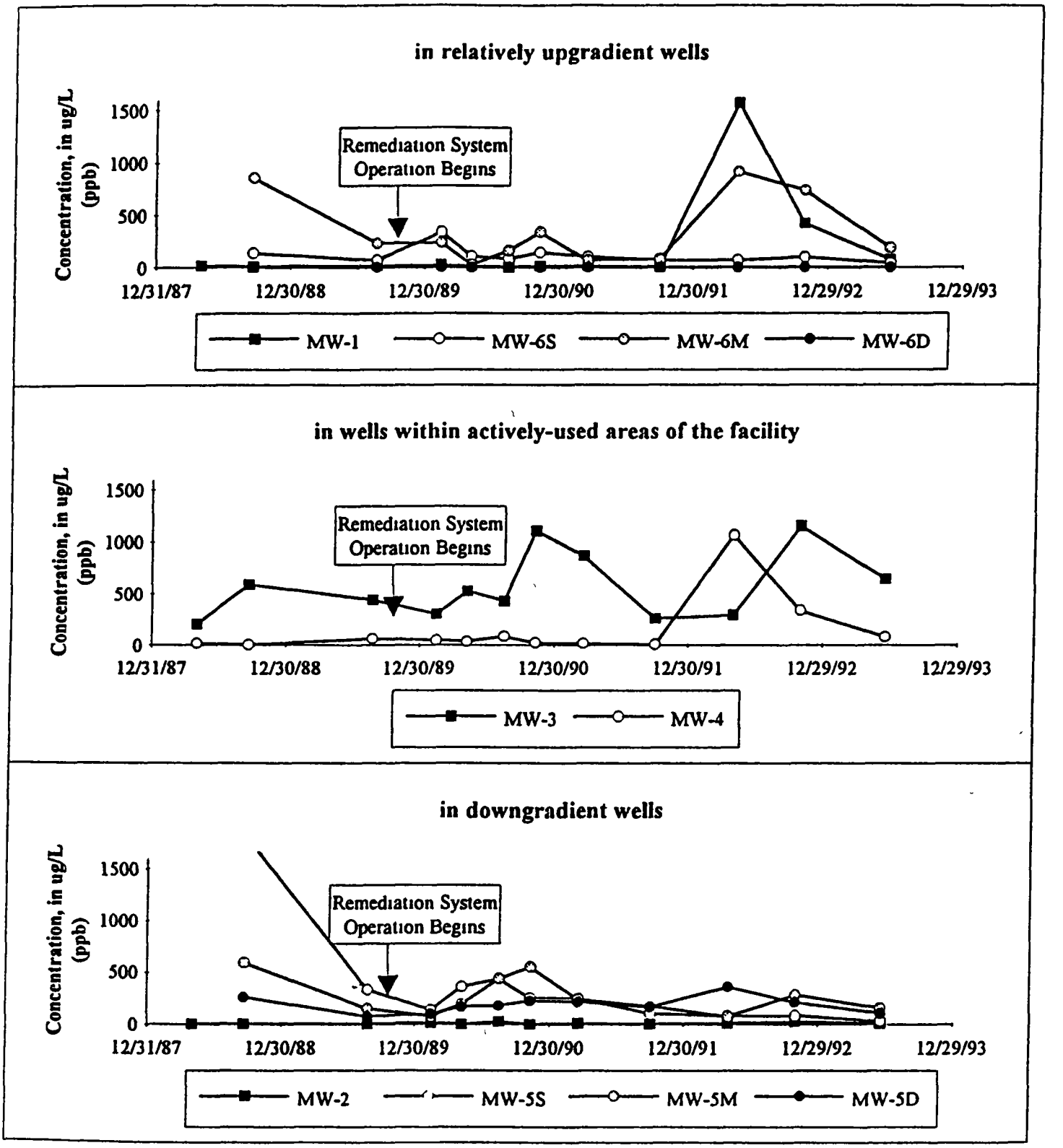


Figure 12 - Gem City Chemicals, Inc.
Sum of Concentrations of Chlorinated Ethenes

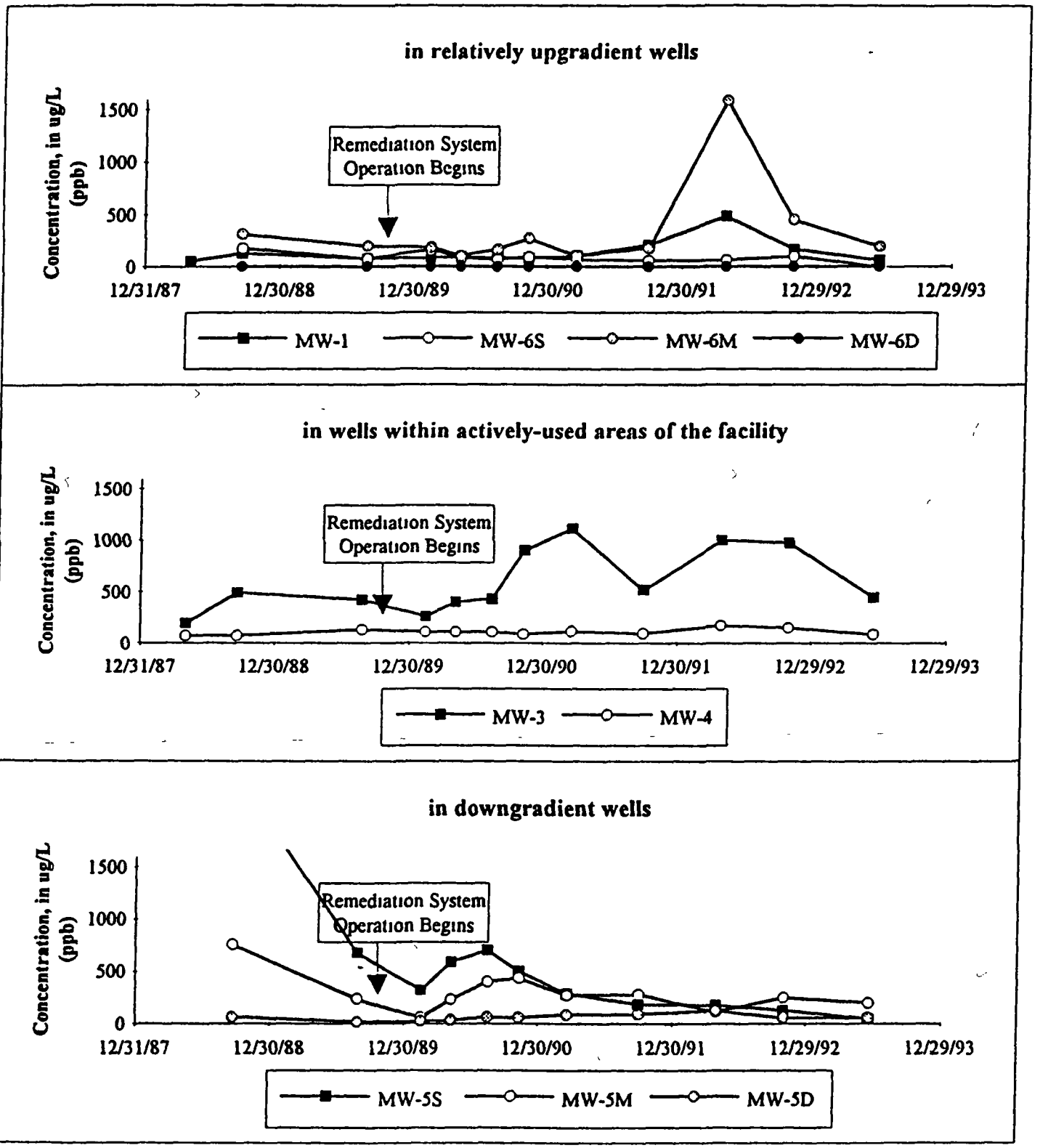


Figure 13 - Gem City Chemicals, Inc.
Concentrations of 1,1,1-Trichloroethane
MCL for 1,1,1-Trichloroethane = 200 ppb

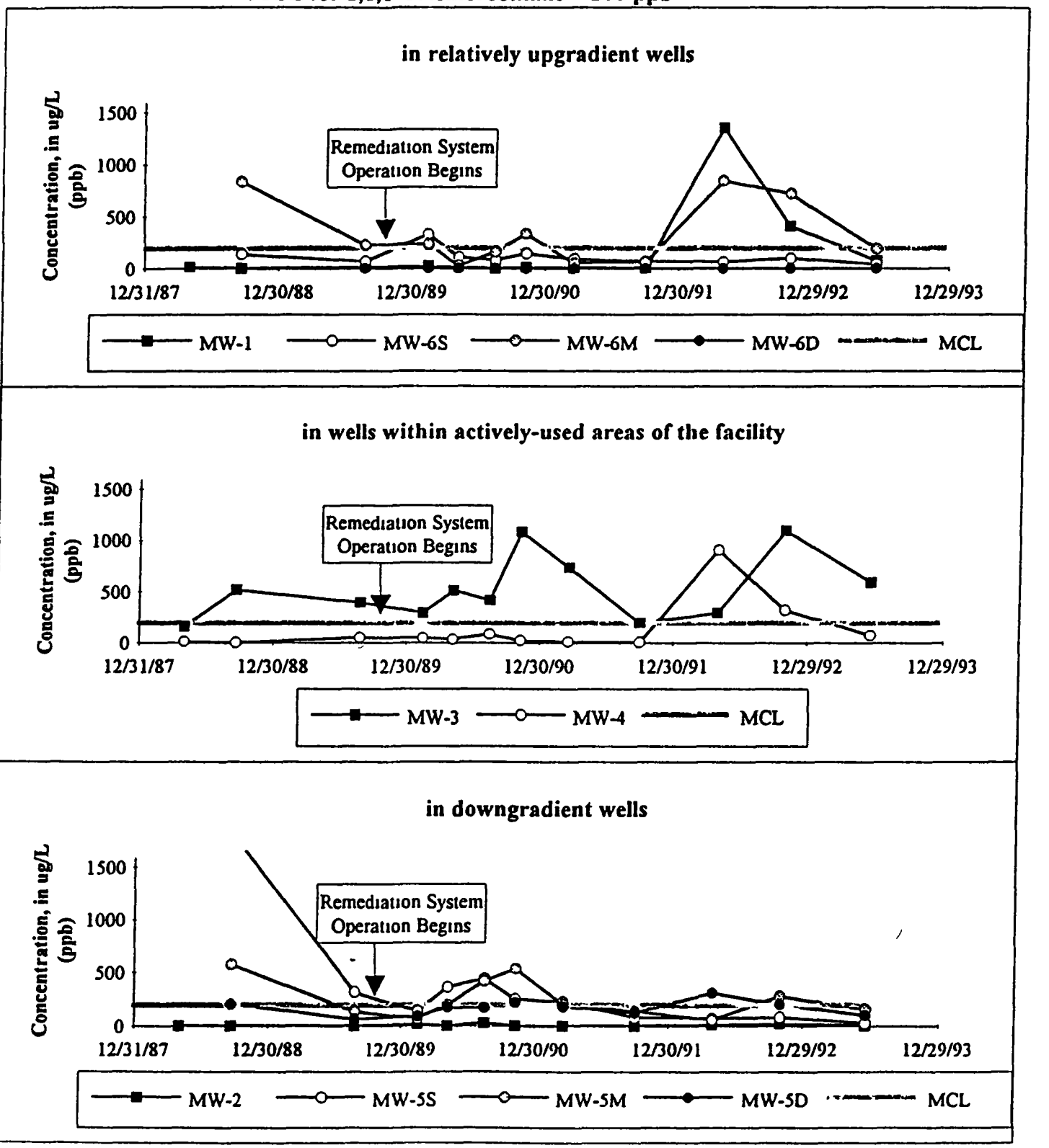


Figure 14 - Gem City Chemicals, Inc.
Concentrations of 1,2-Dichloroethane
MCL for 1,2-Dichloroethane = 5 ppb

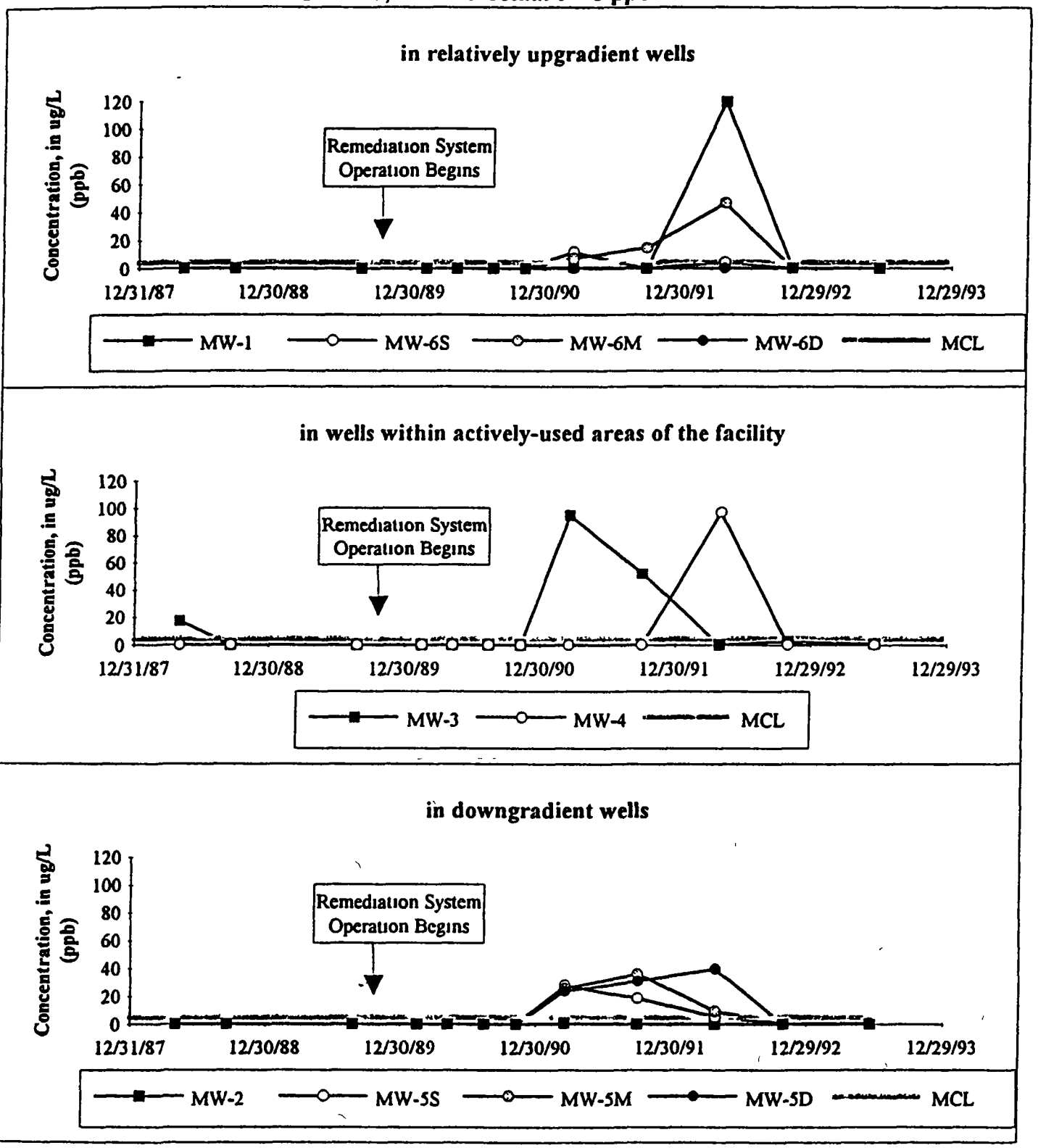


Figure 15 - Gem City Chemicals, Inc.
Concentrations of 1,1-Dichloroethane
Note - No MCL established

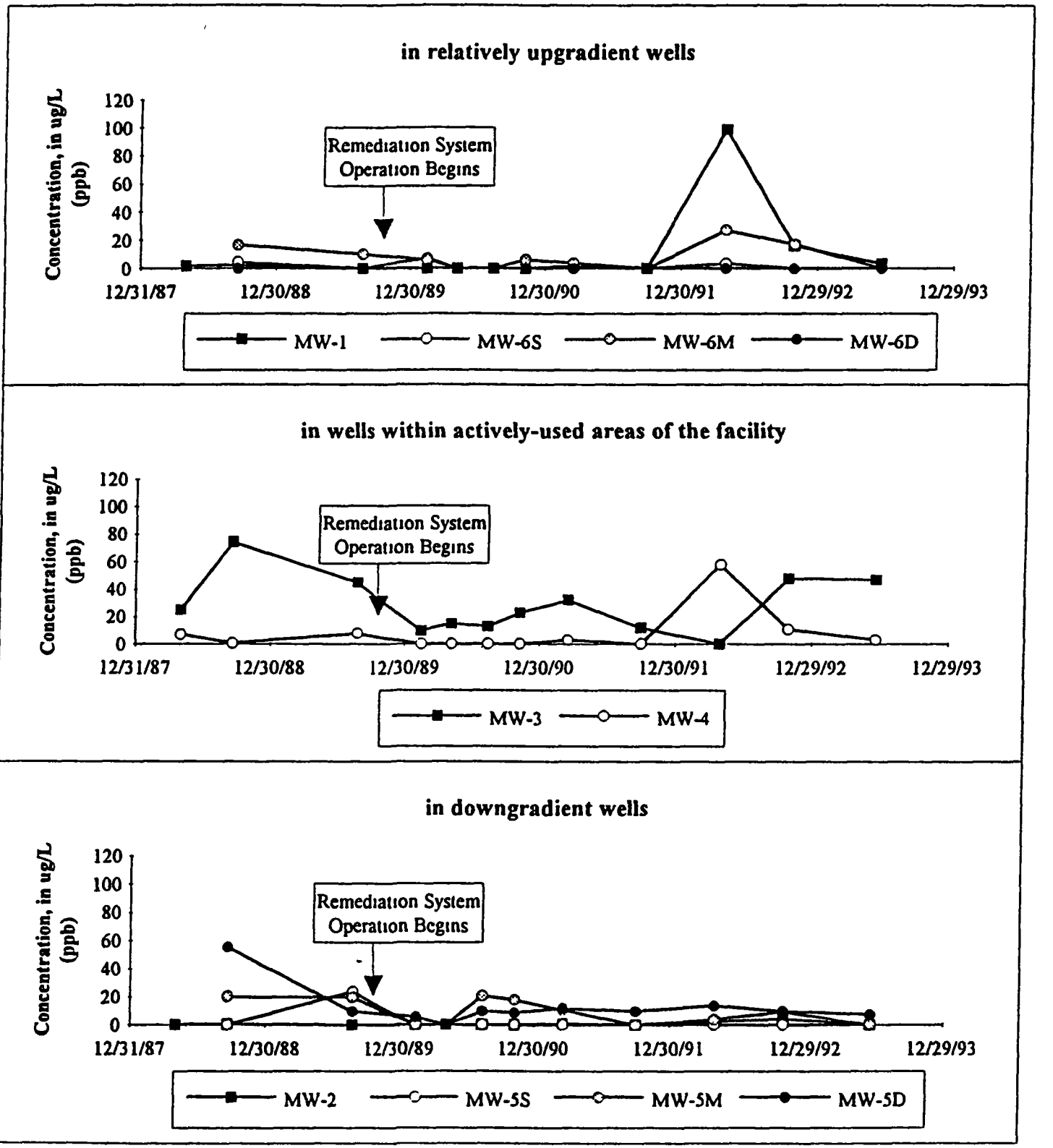


Figure 16 - Gem City Chemicals, Inc.
Concentrations of Tetrachloroethene
MCL for Tetrachloroethene = 5

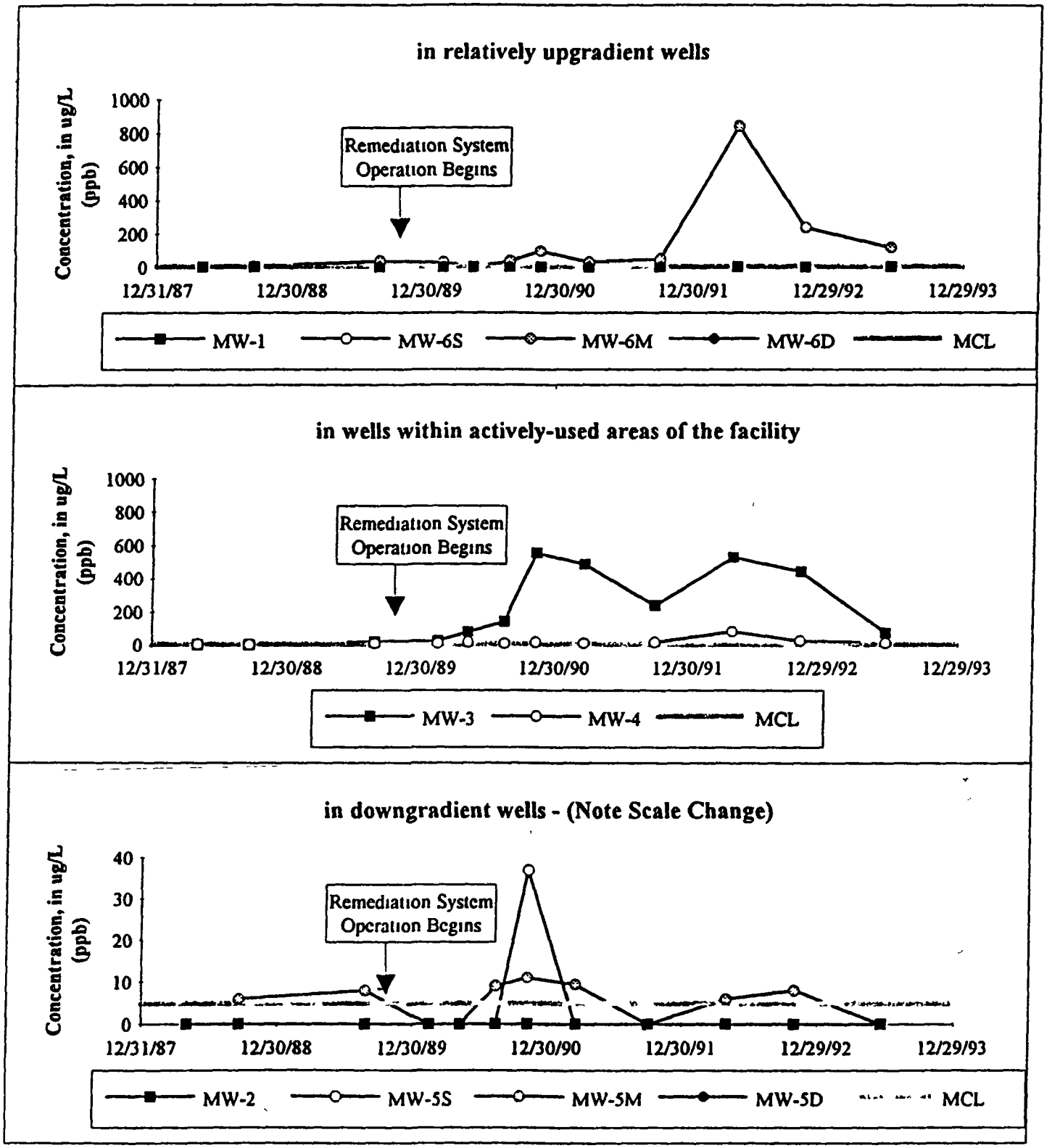


Figure 17 - Gem City Chemicals, Inc.
Concentrations of Trichloroethene
MCL for Trichloroethene = 5 ppb

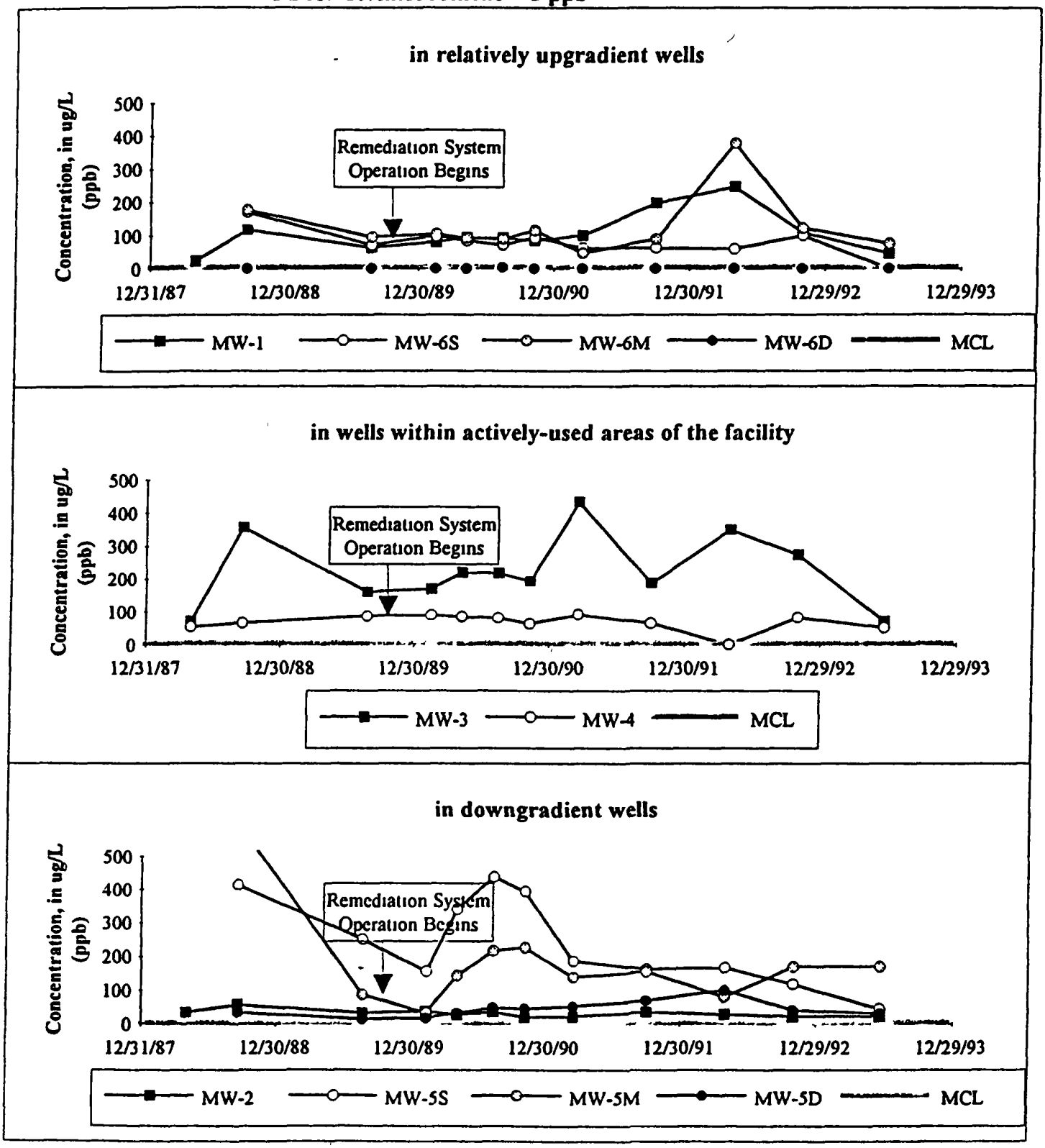


Figure 18 - Gem City Chemicals, Inc.
Concentrations of total 1,2-Dichloroethene
MCL for trans-1,2-Dichloroethene shown = 70 ppb

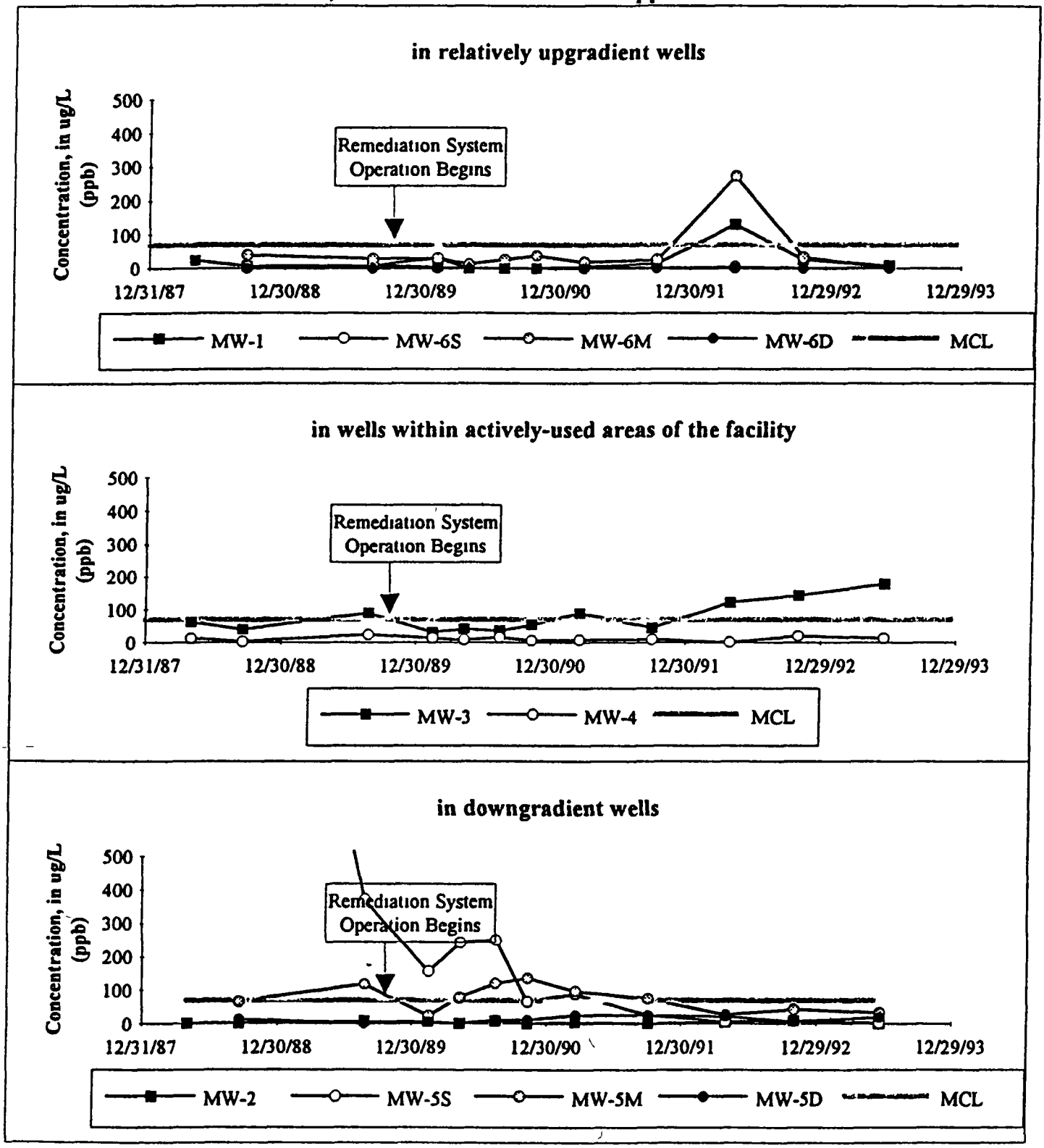
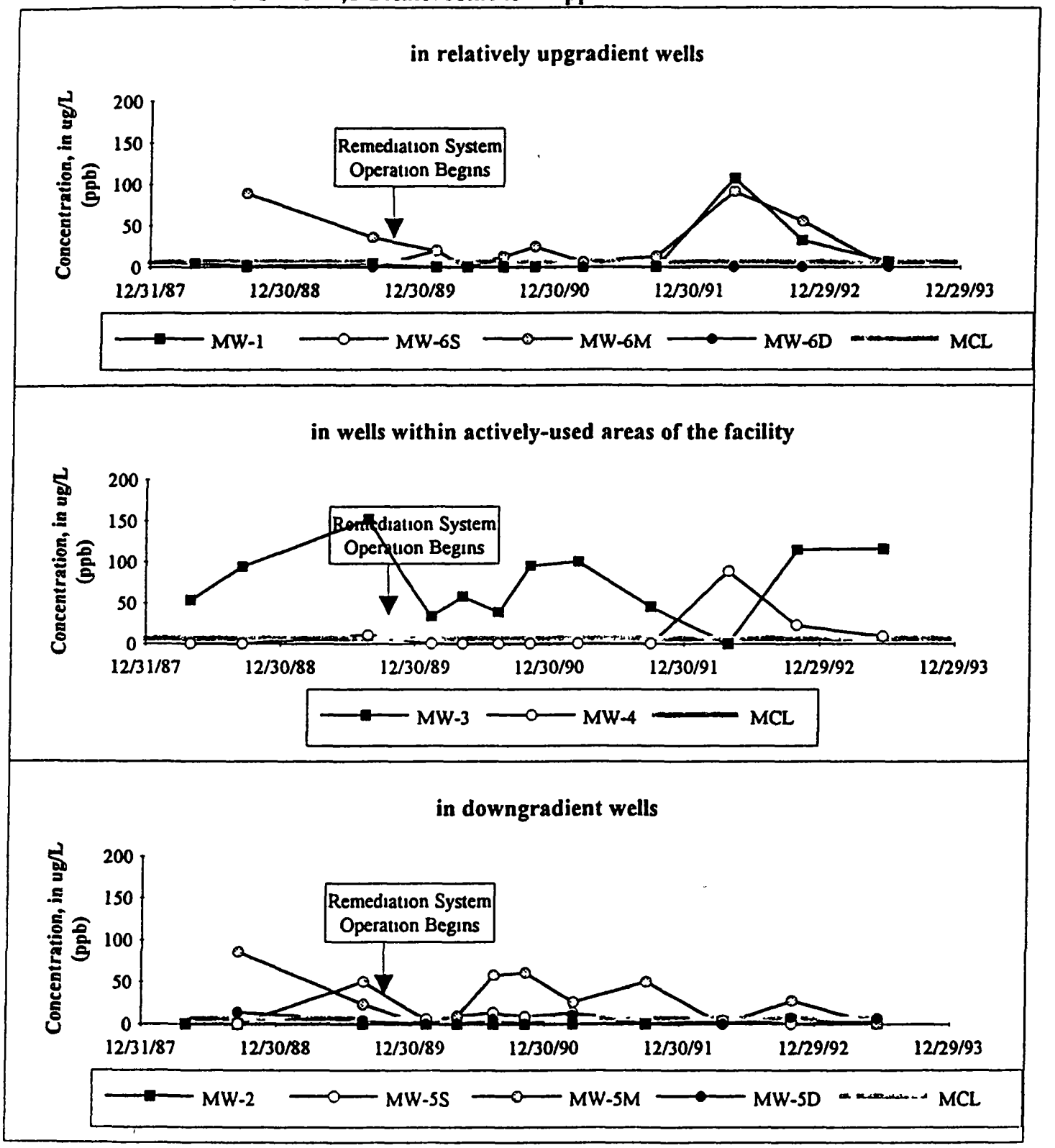


Figure 19 - Gem City Chemicals, Inc.
Concentrations of 1,1-Dichloroethene
MCL for 1,1-Dichloroethene = 7 ppb



4.0 EFFECTIVENESS OF THE GROUND WATER TREATMENT SYSTEM

4.1 Methods Used to Determine the Effectiveness of the Treatment System

The ground-water treatment system at Gem City Chemicals, Inc. includes: a pumping well on-site that prevents the off-site migration of ground water containing VOCs and recovers that ground water, an air stripper tower for the treatment of the pumped water, and discharge of the treated water in the storm sewer, pursuant to an NPDES permit. The effectiveness of the recovery well in preventing off-site migration has been evaluated through the use of potentiometric maps, constructed on a weekly basis and submitted to OEPA for review on a monthly basis since early 1990. The pumping rate has been monitored on a daily basis. The removal of VOCs by the air stripper and discharge of the treated water to the storm sewer system has been monitored by weekly sampling of the air stripper effluent for pH, temperature, total dissolved solids and total organic carbon, monthly monitoring of VOCs, and semi-annual monitoring for semi-volatile compounds since December 1989. The level of VOCs in the monitor wells was initially measured quarterly and is now measured semi-annually. Monthly reports describing the monitoring and remediation activities at Gem City Chemicals, Inc. have been forwarded to the Ohio EPA for review since early 1990.

4.2 Location and Depth of the Recovery Well

The location of the recovery well is near the center of the actively-used portion of the site, as is shown on Figures 5 and 7. The depth of the recovery well is 50 feet. The well log is included in Exhibit F. The as-built diagram is included in Exhibit G.

4.3 Aquifer Parameters

A single aquifer test was performed on February 21, 1990, following installation of the recovery well, in order to determine the aquifer parameters and the pumping rate necessary to ensure that the actively-used portion of Gem City Chemicals, Inc. was underlain by the cone of depression that would be induced. This test was performed by measuring the static water levels at a pumping well and at observation wells prior to pumping, then removing water from the pumping well at a measured rate, and monitoring the lowering of the water level in the wells over time, until a new, stable level was reached. Based on the pumping rate, the total drawdown in the observation well, the distance between the pumping well and the drawdown well, the transmissivity and hydraulic conductivity of the aquifer material was calculated.

During the pump test, the recovery well was pumped at a rate of 340 gallons per minute, and the water level in a piezometer installed 3.5 feet away from the pumping well was monitored. The drawdown was 0.75 feet after 450 minutes of pumping. This gives a value for transmissivity of 52,848 ft^2/day or 395,365 gpd/ft and conductivity of 0.226 cm/sec. The details of the aquifer test are included as Exhibit H

4.4 Area of Capture

The area of capture for the recovery well can be documented from the weekly potentiometric surface mapping and from Figure 7, based on the newly-installed piezometers. According to these maps, the best estimate of the radius of influence is approximately 300 feet. The resulting zone of capture underlies the entire actively-operated area of Gem City Chemicals, Inc. The area beyond the zone of capture, in the westernmost portion of the Gem City Chemicals, Inc. property, that was not used by Gem City Chemicals Inc. for VOC storage, shows no evidence of VOCs in the soil and is therefore not a potential source for the VOCs present in the ground water.

4.5 Prevention of Off-Site Migration

As shown by the potentiometric mapping, shown in Figure 7 and Exhibit C, both the best estimate for the zone of capture and the minimum estimate for the zone of capture underlie the entire actively-operated area of Gem City Chemicals, Inc. and extends to or beyond the facility boundaries to the north and east of the site. This zone of capture causes all ground-water flow to converge toward the recovery well. This effectively prevents the migration of contaminants off-site, as no ground water from within the area influenced by the cone of depression can flow off-site. A plot of potentiometric surface elevations with time, included as Figure 6, shows that the water level in P-1, adjacent to the pumping well has consistently been as much as one foot lower than levels measured in other wells on-site. This demonstrates that the cone of depression beneath the site has been consistently maintained for over two years, independent of the natural fluctuations in ground-water levels during that period of time. The potentiometric maps, the ground-water flow directions determined from these maps, and the plot of potentiometric surface elevations with time demonstrate that the ground-water control system is successful in preventing the off-site migration of ground water.

4.6 Air Stripper Design and Installation

The air stripper at the site is located adjacent to the recovery well. The tower was manufactured by Duall Industries, Inc. The tower design selected was a 42 inch diameter, 32 foot tower, filled with 24 feet of select packing material. The pump, with a rated capacity of 250 to 300 gpm, supplies water to the top of the column, and an air blower supplies 1500 cubic feet per minute of air to the bottom of the tower. An access port allows for sampling of the air stripper effluent and influent water. Flow is monitored with influent pressure and flow gages. The system was installed and tested in December 1989, and began full operation in early 1990. Operational records are included as Exhibit I. Effluent from the system flows into a City of Dayton storm sewer. OEPA's letter of November 3, 1989 permitted the interim operation of the stripping tower and the discharge of the treated waters to the city storm sewer. Discharge to the city storm sewer was applied for on September 22, 1989 and permitted by a Special Privilege Permit granted by the City on November 17, 1989. Discharge is to a catch basin on the north side of the site, near the drum washing shed. The storm sewer runs along Stanley Avenue to the Mad River, where it outfalls. Permit to Install (PTI) for air emissions from the stripping tower (application No. 08-1900) was issued by the OEPA on December 6, 1989. Permit to Install (PTI) the ground-water treatment system (application No. 05-3994) was issued by the OEPA on January 29, 1991. A draft of the final NPDES discharge permit for the treated

water from the stripper tower was issued on March 19, 1991. The final permit was issued on May 30, 1991

4.7 Design and Construction of the Recovery System

The design of the system was based on the volume of water to be pumped from the recovery well, the VOC content of the influent water, and the effluent VOC limits. The recovery well was installed in October 1989 by Moody's of Dayton. It has an 8 inch diameter, galvanized steel casing and is screened from 30 to 50 feet below grade. A 20 horsepower, 230 volt, 3 phase Franklin motor and a Goulds 300L30 pump, with 5 stages and a rated capacity of 300 gpm was installed at a depth of 50 feet.

4.8 Efficiency of the Air Stripper

Although the efficiency was checked during start-up of the system, no regularly-scheduled monitoring information is available to determine the efficiency of the air stripper system on a regular basis. Weekly monitoring of the effluent is required for the NPDES permit, and analytical values have consistently been well below the discharge limits. Based on the assumed high values for VOCs detected in the initial ground-water sampling, and the consistently low values in the air stripper effluent, the system has been operating properly, and the efficiency has been assumed to be high. This is supported by the limited efficiency data, for three time periods, that have been obtained. The stripper efficiency estimates for these three occasions is presented below. Samples were taken from both the stripper influent and effluent on December 13, 1989 for the start-up efficiency calculation. A sample was inadvertently taken from the air stripper influent, instead of from the effluent port, on October 11, 1990. For comparison purposes, these values were compared to the effluent sample obtained on October 19, 1990. Finally, in order to estimate the efficiency of VOC removal, the influent to the stripper was sampled on June 9, 1992 and analyzed. These values were compared to those for the effluent sample, taken on June 5, 1992. Tables 6, 7 and 8 are comparisons of the influent to effluent analytical values, and the efficiency of the stripper, as measured by the percentage of VOC removed. The efficiency value could not be calculated directly for several of the compounds detected in the influent sample, as the corresponding value in the effluent sample was below detection limits. For the remaining compounds, the air stripper efficiency varied between 95% and 99%. Estimates for the overall system efficiency were made by comparing the sum of the concentrations of all detected VOCs from the influent sample to the sum of all detected in the effluent sample. In order to account for the non-detect data for the effluent samples, a value of 1/2 the detection limit was used for the non-detect effluent data. The calculated efficiency of the system for these three dates using this approach is between 97 and 98%. Recent cleaning should improve this efficiency

Table 6 - Comparison of Air Stripper Influent vs. Effluent Water Quality

Gem City Chemicals, Inc. - December 1989

PARAMETER ($\mu g/\ell$)	Influent	Effluent	Efficiency
1,1-Dichloroethane	10	<5	>50.%
1,1-Dichloroethene	21	<5	>75.%
1,2-Dichloroethene (total)	66	<5	>92.%
Tetrachloroethene	13	<5	>62.%
1,1,1-Trichloroethane	237	<5	>98.%
Trichloroethene	124	<5	>96.%
Total VOCs	481	15	97.%

Table 7 - Comparison of Air Stripper Influent vs. Effluent Water Quality

Gem City Chemicals, Inc. - October, 1990

PARAMETER ($\mu g/\ell$)	Influent	Effluent	Efficiency
1,1-Dichloroethane	9	<5	8>50 %
1,1-Dichloroethene	33	<5	>85.%
1,2-Dichloroethene (total)	53	<5	>90.%
Tetrachloroethene	130	<5	>96.%
1,1,1-Trichloroethane	349	6	98.3.%
Trichloroethene	246	<5	>98.%
Total VOCs	820	15.5	98.%

Table 8 - Comparison of Air Stripper Influent vs. Effluent Water Quality

Gem City Chemicals, Inc. - June, 1992

PARAMETER ($\mu g/\ell$)	Influent	Effluent	Efficiency
Chloroform	1.0	<0.5	>50 %
4-Chlorotoluene	3.7	<1.0	>73.%
1,1-Dichloroethane	15	<1.0	>93.%
1,2-Dichloroethane	7.9	<0.5	>94.%
1,1-Dichloroethene	18	<1.0	>94.%
cis-1,2-Dichloroethene	72	3.5	95.%
trans-1,2-Dichloroethene	3.1	<1.0	>68.%
Tetrachloroethene	98	1.5	97.5%
1,1,1-Trichloroethane	163	2.1	99.%
1,1,2-Trichloroethane	0.4	<0.2	>50.%
Trichloroethene	121	2 7	98.%
Vinyl Chloride	3.0	<1 0	>67 %
Total VOCs	506	12.9	97.5%

4.9 Effectiveness in Removal of VOCs from the Ground Water

The removal of volatile organic compounds by the recovery well and air stripper system is estimated by the difference between the VOC content of ground water at the site and the concentration in the effluent, times the amount of water pumped from the ground during the time the well system has been operating. The system, operating for 40 months between November 1989 and February 1993, has been pumping about 300 gallons of water per minute during that time period, for a total of about 525,000,000 gallons of water, or 4,381,000,000 pounds of water. The total VOC concentration in the water pumped from the recovery well over the span of this project is not known but is estimated to be between 500 ppb and 2,000 ppb on the basis of the VOC content for samples from other monitor wells on the site. A value of 1,000 ppb is assumed for the purposes of this estimate. The VOC content in the effluent is consistently below the 10 ppb discharge limits, and a value of 0 is assumed for this calculation Based on these numbers, approximately 4,400 pounds of VOCs have been removed from the ground water, with the range estimated to be between 2,200 and 8,800 pounds. The three influent samples, which may or may not be representative of ground water being pumped through the system, contain between 480 and 820 ppb of total VOCs The full calculation, showing all assumptions is included in Exhibit J Based on these limited data, the total amount of VOCs removed is

probably less than the calculated value. and is estimated to be between 2,200 and 4,400 pounds, with a most likely value of 3,300 pounds.

5.0 EFFECTIVENESS OF THE VAPOR EXTRACTION SYSTEM

5.1 Design and Installation

To remove the volatile organic compounds from the vadose zone (the soil zone above the water table), five vapor extraction wells were installed in October 1988. Locations of the vapor extraction wells are shown in Figure 20 Figure 10 shows the typical design of these installations. Well construction details are provided in Table 4. The five vapor extraction wells were installed in shallow borings and are constructed from 4" diameter PVC casing, with a 2.5 foot screen, installed at a nominal depth of 19.5 to 22 feet below the ground surface. This depth was at to slightly above the ground-water table at the time the wells were installed. Air is extracted from each well with a Regenair Model R6325A blower, with a rated maximum flow rate of 206 cubic feet of air per minute. Discharge of the extracted air is from a PVC stack, at an elevation of 8 feet above the ground surface. Permit to Install (PTI) for air emissions from the five vapor extraction wells (application No. 08-1681) was issued February 8, 1989.

5.2 Emissions Testing

Emissions from the vapor extraction wells were measured monthly and has been summarized in Table 8. Through August 1990, effluent air was tested with a organic vapor analyzer (OVA) calibrated to and reported as methane. After that date a photoionization detector (PID) calibrated to and reported as benzene was used.

5.3 Removal Efficiency

Initial removal of VOCs by the soil vapor extraction wells was very high. Extraction rates had to be reduced initially to remain within discharge limits. Concentration of VOCs in the discharged air dropped and all blowers rates were set back to design rates. Vapor extraction wells were shut down during the aquifer evaluation testing. Blowers on several of the wells had to be replaced during the first year. After a year and a half of operation, concentrations of VOCs in the discharge air had fallen below detection levels and four of the five vapor extraction wells were turned off. All vapor extraction wells were restarted in July of 1991 but concentrations fell below detection levels within a week. The radius of influence was not determined at the time of installation. Vapor extraction well VE-3 was decommissioned (the below ground well was abandoned by removal and grouting) in July 1992, to allow for additional paving of the chemical storage and handling area. The remaining vapor extraction wells were briefly restarted in August, 1992 and the discharges were measured after a day of operation. No significant concentrations of VOCs were detected. Three of the four remaining vapor extraction wells were then decommissioned.

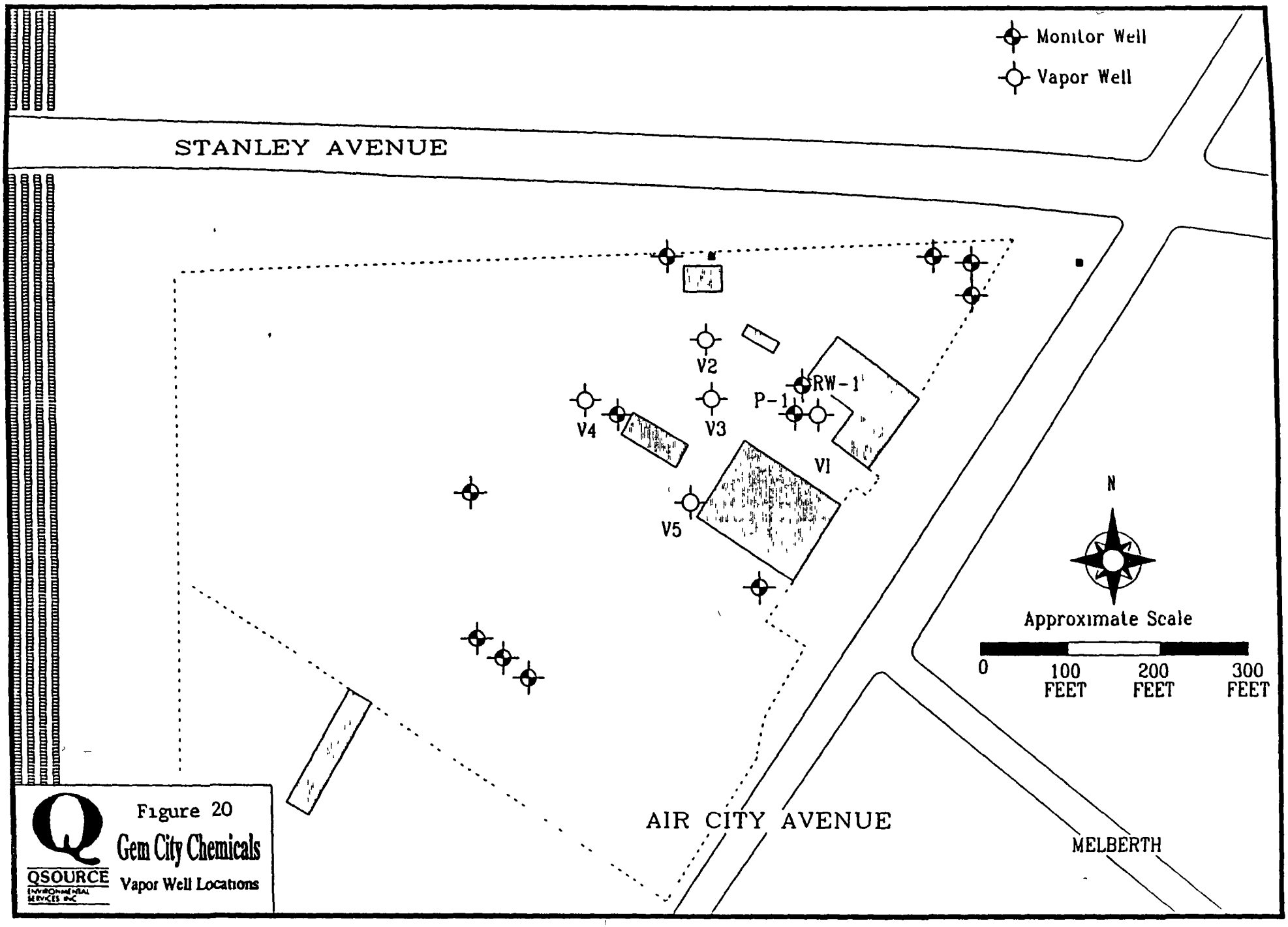


Figure 20

Gem City Chemicals

Vapor Well Locations

QSOURCE
ENVIRONMENTAL SERVICES INC

5.4 Effectiveness

The effectiveness of the vapor extraction system can be estimated from the monitoring data by assuming that the PID or OVA reading is equal to the effluent concentration of VOCs and is an estimate for the effluent for the entire month. The total amount of VOCs removed is equal to the product of the number of vapor extraction wells in operation, the flow rate for each blower (200 cubic feet per minute), the density of air, and the average VOC effluent content for the wells. The monthly estimates for VOC removal from the vadose zone are shown in Table 9. The total estimate for VOC removal from the vadose zone is approximately 1100 pounds.

Table 8 Emissions from the Vapor Extraction wells

DATE	VE-1	VE-2	VE-3	VE-4	VE-5	DATE	VE-1	VE-2	VE-3	VE-4	VE-5
4/28/89	160	160	64	140	85	6/90	BDL	BDL	BDL	OFF	BDL
5/15/89	120	135	14	65	25	7/90	OFF	BDL	BDL	BDL	OFF
6/2/89	OFF	120	12	44	OFF	8/90	BDL	BDL	BDL	BDL	BDL
6/30/89	OFF	95	9	OFF	OFF	9/90	OFF	OFF	OFF	2	OFF
7/27/89	OFF	76	15	OFF	OFF	10/90	OFF	OFF	OFF	4	OFF
8/17/89	OFF	61	7	12	42	11/90	OFF	OFF	OFF	5.4	OFF
9/25/89	68	44	9	4	25	12/90	OFF	OFF	OFF	9.2	OFF
10/18/89	22	39	6	BDL	16	1/91	OFF	OFF	OFF	11.7	OFF
11/22/89	BDL	35	7	3	6	2/91	OFF	OFF	OFF	2.0	OFF
12/20/89	BDL	BDL	5	BDL	BDL	3/91	OFF	OFF	OFF	1.5	OFF
1/9/90	BDL	20	3	BDL	BDL	4/91	OFF	OFF	OFF	0.5	OFF
2/90	OFF	OFF	OFF	OFF	OFF	5/91	OFF	OFF	OFF	0.5	OFF
3/90	OFF	OFF	OFF	OFF	OFF	6/91	OFF	OFF	OFF	4.2	OFF
4/90	n/a	n/a	n/a	n/a	n/a	7/91	0.5	10	1.5	2.5	BDL
5/90	BDL	BDL	BDL	BDL	BDL	7/91*	0.1	0.1	0.0	0.0	0.0

* Extra reading on 7/17/91 using an OVA

Table 9 Vapor Extraction System - VOC Removal Estimate

MONTH	NO. OF OPERATING WELLS	AVG. CONC. VOC'S IN AIR (ppm)	TOTAL AIR FLOW RATE (CFM) WELLS * 200	WEIGHT REMOVED (lbs.)
April 1989	5	121 8	1000	400
May 1989	5	71 8	1000	236
June 1989	2 - 3	56	500	92
July 1989	2	45 5	400	60
August 1989	4	24 4	800	64
September 1989	5	30	1000	98
October 1989	5	16 6	1000	55
November 1989	5	10 2	1000	33
December 1989	5	1	1000	3
January 1990	5	4 6	1000	15
February 1990	0	0	0	0
March 1990	0	0	0	0
April 1990	0	0	0	0
May 1990	5	0	1000	0
June 1990	4	0	800	0
July 1990	3	0	600	0
August 1990	5	0	1000	0
September 1990	1	2	200	1
October 1990	1	11	200	7
November 1990	1	5 4	200	4
December 1990	1	9 2	200	6
January 1991	1	11 7	200	8
February 1991	1	2	200	1
March 1991	1	3	200	2
April 1991	1	1 5	200	1
May 1991	1	0 5	200	0
June 1991	1	4 2	200	3
July 1991	5	1 4	1000	5
Estimate of volatile products removed (in pounds)				1094

6.0 SUMMARY

6.1 Summary of Remediation Activities to Date

As summarized in this Site Assessment report, Gem City Chemicals Inc. has undertaken a number of voluntary investigation and remediation activities and has reported the results of these activities to OEPA for review.

Ten underground storage tanks which were either in service at the time that Gem City Chemicals, Inc. began operations in 1969 or which were later installed by Gem City Chemicals, Inc , were removed in April and May 1986, pursuant to a permit issued by the City of Dayton. Gem City Chemicals, Inc. reports that there was no evidence of tank leakage at the time that the tanks were removed, and that the tanks were never used to store chlorinated solvents.

Five vapor extraction wells were installed within the active working area of the site in October 1988. A Permit to Install for air emissions from the wells (application No. 08-1681) was issued by the OEPA on February 8, 1989. These wells were operated continuously from April 1989 to January 1990, and have been operated intermittently since that time. These wells have removed an estimated 1100 pounds of VOCs from the vadose zone, the majority of that during the first seven months of operations.

A ground-water remediation system, consisting of a pumping well located in the center of the active portion of the site and an air stripper tower was installed between September and December 1989. OEPA's letter of November 3, 1989 permitted the interim operation of the stripping tower and the discharge of the treated waters to the city storm sewer. Discharge to the city storm sewer was applied for on September 22, 1989 and permitted by a Special Privilege Permit granted by the City on November 17, 1989. Permit to Install (PTI) for air emissions from the stripping tower (application No. 08-1900) was issued by OEPA on December 6, 1989. Permit to Install (PTI) the ground-water treatment system (application No. 05-3994) was issued by OEPA on January 29, 1991. A draft of the final NPDES discharge permit for the treated water from the stripper tower was issued on March 19, 1991 and the final permit was issued on May 30, 1991. Water samples of the air stripper effluent have been taken and analyzed, on a weekly basis for several indicator parameters, and for VOCs on a monthly schedule. The pumping well and air stripper tower have been operated nearly continuously from November 1989 until the present date. The monthly effluent monitoring results and a limited number of air stripper efficiency estimates that have been made indicate that the system is about 98% efficient in removing VOCs from the water. A most-likely estimated 3,300 pounds of VOCs have been removed from the ground water to date.

9Ten monitor wells and six piezometers have been installed at eleven locations on the site The depth to water in these wells has been measured weekly, and potentiometric maps of the site have been prepared using these data These maps show that removal of water from the recovery well has induced a cone of depression beneath the actively-used portions of the site, and is effectively preventing the off-site migration of VOCs. Water quality samples have been taken from these wells and analyzed on a regular basis

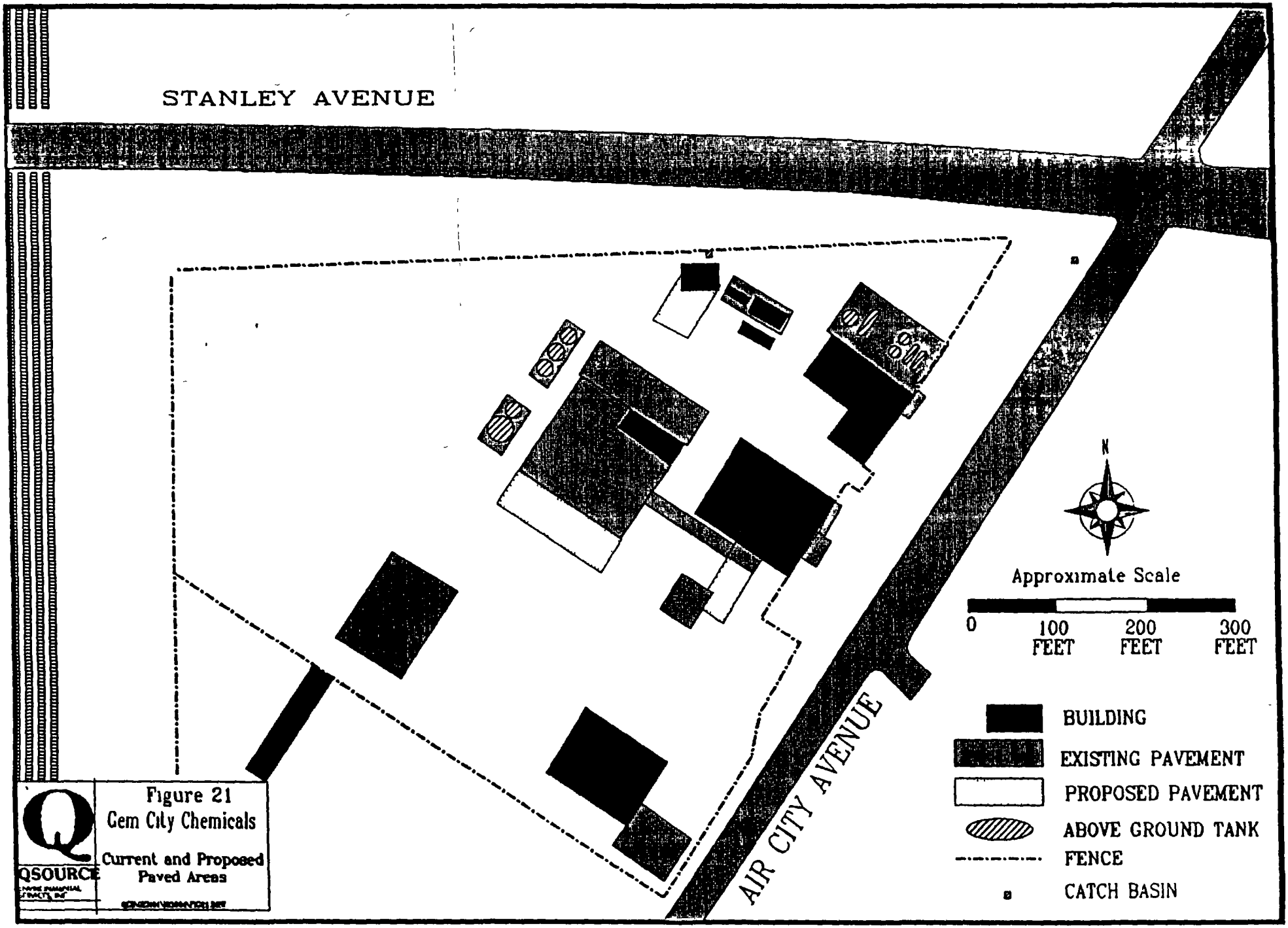
Data generated during these remediation activities have been submitted to the OEPA for review on a monthly basis since early 1990.

In June 1990, Gem City Chemicals, Inc. initiated an ongoing program to pave and dike the areas where chemicals are stored and transferred. The areas that have been paved to date are shown in Figure 21.

Gem City Chemicals, Inc. is a member of the National Association of Chemical Distributors The NACD has issued a document entitled "NACD Responsible Distribution Process' which consists of a set of eight guiding principles and an Implementation Guide. Gem City Chemicals, Inc. accepted these guiding principles as part of its operating policies on February 7, 1992 and is implementing these principles through environmental education of all employees, as part of the regularly-scheduled health and safety meetings using materials from the NACD Responsible Distribution Process Implementation Guide. Copies of the "NACD Responsible Distribution Process Guiding Principles" and "NACD Responsible Distribution Process Implementation Guide" are included as Exhibit K

6.2 Recommended Additional Remediation Activities

Gem City Chemicals, Inc. remains committed to resolving the environmental conditions at the Air City Avenue property Its records show that it has moved aggressively and voluntarily to address this matter, with the assistance and oversight of Ohio EPA. Gem City Chemicals, Inc 's continuing goal is to direct financial resources towards remediation of existing conditions and hard-surfacing all chemical-handling areas to reduce future exposure. Other remediation activities supervised by OEPA at other sites suggest that the Air City Avenue property is one small part of a much broader, regional issue in this part of Dayton. Gem City Chemicals, Inc. believes that its investigatory efforts have adequately defined the environmental issues associated with the site. Gem City Chemicals, Inc. further believes that its remediation activities to date have effectively prevented off-property migration and removed significant quantities of VOCs from the ground water and vadose zone. Therefore, Gem City Chemicals, Inc. does not believe that any changes are needed in the existing ground-water recovery and treatment system. Gem City Chemicals, Inc. further believes that the additional remedial activities proposed herein will allow for the effective final remediation of the site in the relative near-term.


STANLEY AVENUE
AIR CITY AVENUE
N
Approximate Scale
0
100 FEET
200 FEET
300 FEET
BUILDING
EXISTING PAVEMENT
PROPOSED PAVEMENT
ABOVE GROUND TANK
FENCE
CATCH BASIN
QSOURCE
Figure 21
Gem City Chemicals
Current and Proposed Paved Areas

Monitor wells should continue to be monitored on a semi-annual basis, during seasonal high and low periods Monitor wells need to be monitored for VOCs only In addition, the recovery well influent into the stripper should be monitored monthly In the future, Gem City Chemicals, Inc. believes that the frequency of monitoring can be reduced significantly. All work and storage areas should be paved, to prevent any possible releases from percolating into the ground. In addition, the paving will increase the effectiveness of any vapor extraction system The proposed locations for additional paving are shown in Figure 21. Gem City Chemicals, Inc. understands that this work is discretionary, and outside the purview of the Administrative Orders on Consent. The recovery well and air stripper should continue to be operated as they have in the past.

6.3 Conclusions

Gem City Chemicals, Inc. has been operating at the Air City Avenue facility since 1969 The operation buys chemicals in bulk and repackages them for resale. The site is located on a very permeable geologic formation. The facility is in an industrial area of Dayton that has had many ground-water problems. The data indicate that some volatile organic chemicals have percolated into the soil and into the ground water underlying the site. Some of these VOCs may have come from Gem City Chemicals, Inc., and some may be the result of ground-water contamination from other sites. Gem City Chemicals, Inc. became aware of the problem during an internal assessment of operations in 1987. Gem City Chemicals, Inc. initiated its own investigation to determine the extent of the problem, developed and implemented a subsequent voluntary remedial program, and has regularly reported the results of this program to OEPA.

Gem City Chemicals, Inc. investigations have included soil gas surveys, soil sampling and aquifer testing. Currently Gem City Chemicals, Inc. is monitoring water quality at ten monitor wells which have been installed and are regularly sampled.

The remedial actions taken to date have been successful. The installation and operation of the recovery well prevents the off-property migration of VOCs in ground water and has succeeded in removing significant quantities of VOCs from the ground water. Based on the success of the system to date, there are no deficiencies in the recovery and treatment system Gem City Chemicals, Inc. does not believe that any changes are needed in the existing ground-water recovery and treatment system. The five vapor extraction systems have succeeded in removing significant quantities of VOCs from the soils in areas where they are located.

Future measures proposed here (continued monitoring, continued operation of the recovery well) will minimize or eliminate the potential for future problems. Continued hard surfacing will prevent accidental releases into the environment and prevent the downward flushing of vadose zone VOCs during precipitation events. Gem City Chemicals, Inc.'s continued monitoring and remediation program will assure that there will not be a threat to ground water from this site.

EXHIBIT A

TANK REMOVAL DOCUMENTATION

UNDERGROUND STORAGE TANK HISTORY
Gem City Chemicals, Inc.

Products Held in UGST's:

Fuels:	Capacity	Years in Service
Diesel	6000g	15
Regular gas	4000g	*' unknown
Unleaded gas	2000g	* unknown
Solvents:		
Acetone	6000g	8
Isopropyl Alcohol	8000g	8
Methyl Alcohol	8000g	8
Stoddard Solvent (Mineral Spirits)	8000g	14
Methyl Ethyl Ketone	8000g	8
Toluol	8000g	8
Xylol	8000g	8

NOTES:

1. With the exception of the 4000 gallon regular gas tank and the 2000 gallon unleaded tank, all tanks were buried in accordance with codes established by City of Dayton Fire Department for flammable liquids including:

   A. Cathodic protection
   B. Washed sand bed
   C. Asphaltic coating on tanks & plumbing
   D. Pressure tested upon installation

2. All tanks were removed by 5-5-86;
   See attached "Underground Storage Tank Removal"

*3. The regular and unleaded gas tanks were in service when Gem City Chemicals began operations on the property in 1969. We therefore, have no established history on these tanks.

4. All tanks were of steel construction.

Gem City Chemicals, Inc.

1287 AIR CITY AVE P O BOX 251
DAYTON OHIO 45404
513 224 0711

Underground Storage Tank Removal

Solvent Storage Tanks: Removed by 4-26-86

On this date GCC's seven underground solvent storage tanks were removed by Henry Jergens Contractor, Inc.

Soil samples were taken by David Stewart from the sand directly beneath each tank. Care was taken to obtain representative samples of the soil under each tank to determine if any of the tanks had leaked materials.

There was no evidence from the soil samples or by close visual inspection of each tank that any of the tanks had leaked product.

The soil samples will be maintained indefinitely on GCC's retained sample shelf.

Photographs were taken to document the tank removal. They will be kept in the "GCC Underground Storage Photos" binder in the safe.

The Methyl Alcohol storage tank will be kept for GCC's above ground (with dike) diesel fuel storage. All other tanks were hauled away by Henry Jergens for disposal.

Soil samples were taken of the backfill furnished by Henry Jergens. These samples will also be maintained on the GCC retained sample shelf for an indefinite period.

Fuel Storage Tanks: Removed by 5-5-86

On this date GCC's three underground fuel tanks were removed by Henry Jergens Contractor, Inc.

Soil samples and photos were taken in line with procedures followed above for solvent tanks.

There was no evidence of leakage from any of the tanks.

David A. Stewart
5-6-86

BULK SOLVENT STORAGE SYSTEMS

A AREA: Above Ground (140 - 149)

Blend Tank (#3303) Brown . . . . . #140
Calcium Chloride System (#2238) Blue . . . . . #142
Note: West of solvent druming shed

B AREA: Under Ground Solvent Area (150 - 159)

MEK . . . . . (#1 Tank - #3252) White . . . . . #150
Xylol . . . . . (#2 Tank - #3753) Black . . . . . #151
Acetone . . . (#3 Tank - #3979) Red . . . . . #152
Toluol . . . . (#4 Tank - #2661) Gray . . . . . #153
IS/AL . . . . (#5 Tank - #2002) Green . . . . . #154

Note:
(1) Tanks are positioned north to south, #1 thru #5.
(2) Dust caps on 3" dia. fill lines near track run #1 thru #5, north to south, corresponding with under ground tanks only.

C AREA: Under Ground Tanks (160 - 169)

Stoddard Solvent . . (#1 Tank - #2126) Yellow . . . . . #160
Methanol . . . . . (#2 Tank - #2259) Orange . . . . . #161
Open Area . . . . . (#3 Area - #2314) . . . . . #162
Open Area . . . . . (#4 Area - #2396) . . . . . #163

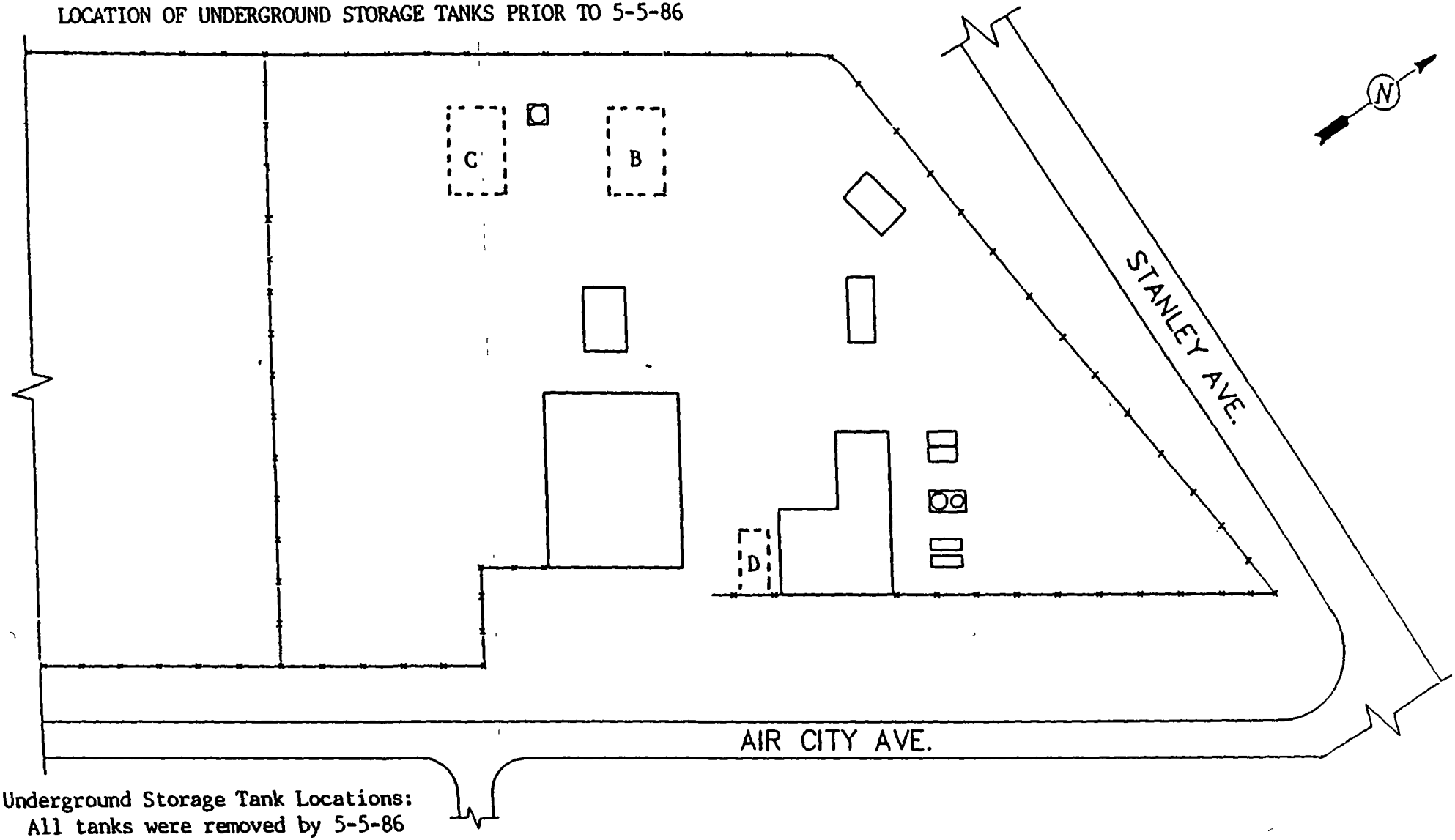
Note:
(1) Tanks are installed #1 thru #4, east to west.
(2) Valves on east stanchion #1 thru #4 run north to south.
(3) Dust cap locks on 3" fill line stanchion near track, #1 thru #4, run south to north.
(4) Valves on 2" pump manifold, #1 thru #4, run south to north.
(5) South of drum storage yard.

D AREA: Under Ground Fuel Area (170 - 179)

Regular Gas . . . . (4000g tank - #2281) . . . . . #170
Unleaded Gas . . . . (2000g tank - #0643) . . . . . #171
Diesel . . . . . (6000g tank - #2396) . . . . . #172

Note: South of office building.

LOCATION OF UNDERGROUND STORAGE TANKS PRIOR TO 5-5-86



Underground Storage Tank Locations:
All tanks were removed by 5-5-86

AREA B			AREA C			AREA D		
Product	Capacity	Years In Service	Product	Capacity	Years In Service	Product	Capacity	Years In Service
MEK	8000 gal	8	Stoddard Solvent	8000 gal	14	Diesel	6000 gal	15
Xylene	8000 gal	8	Methyl Alcohol	8000 gal	14	Unleaded	2000 gal	unknown
Acetone	6000 gal	8				Regular	4000 gal	unknown
Toluene	8000 gal	8						
Isopropyl Alcohol	8000 gal	8						

EXHIBIT D

QUARTERLY POTENTIOMETRIC SURFACE MAPS

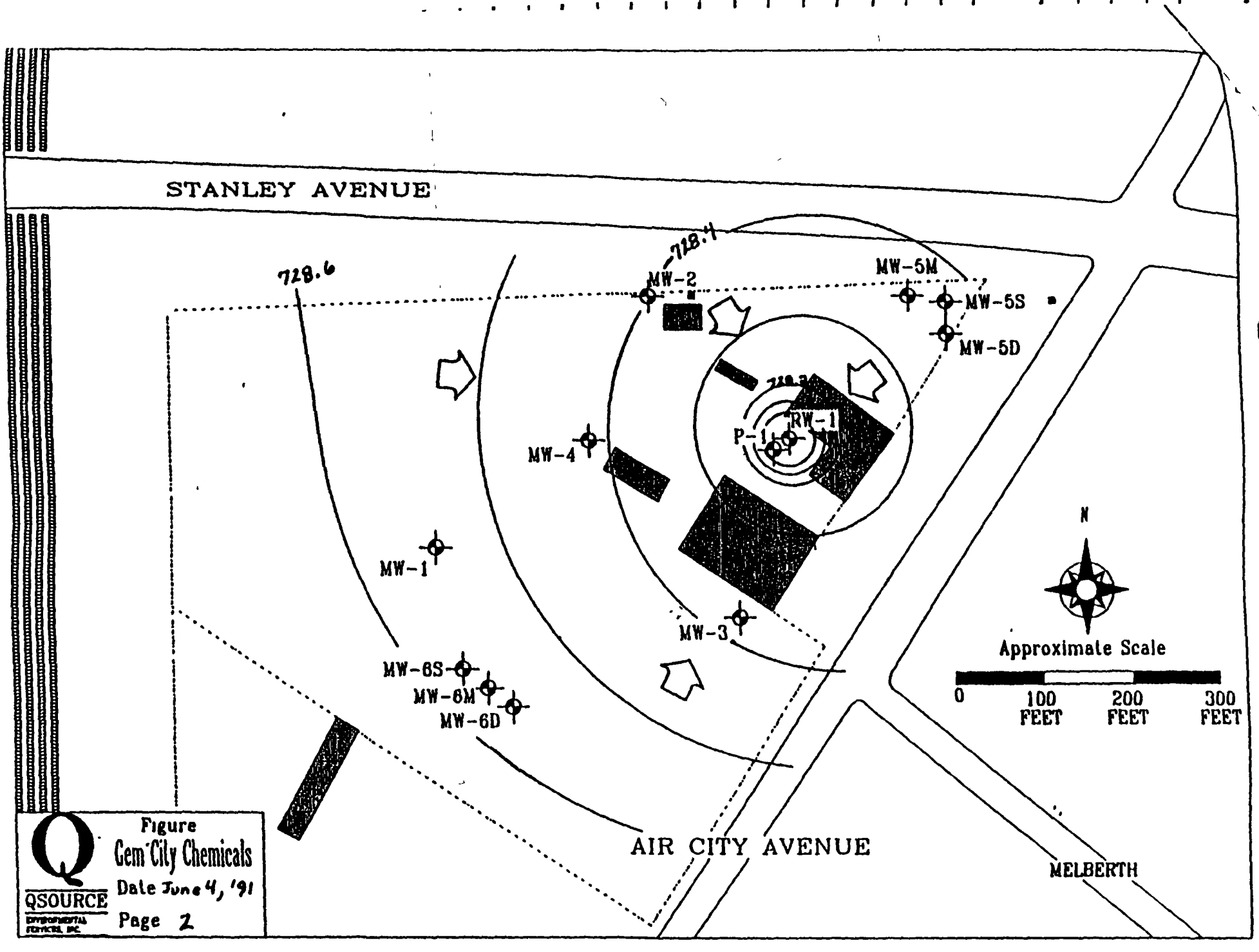


Figure
Gem City Chemicals
Date June 4, '91
Page 2

QSOURCE
ENVIRONMENTAL SERVICES, INC.

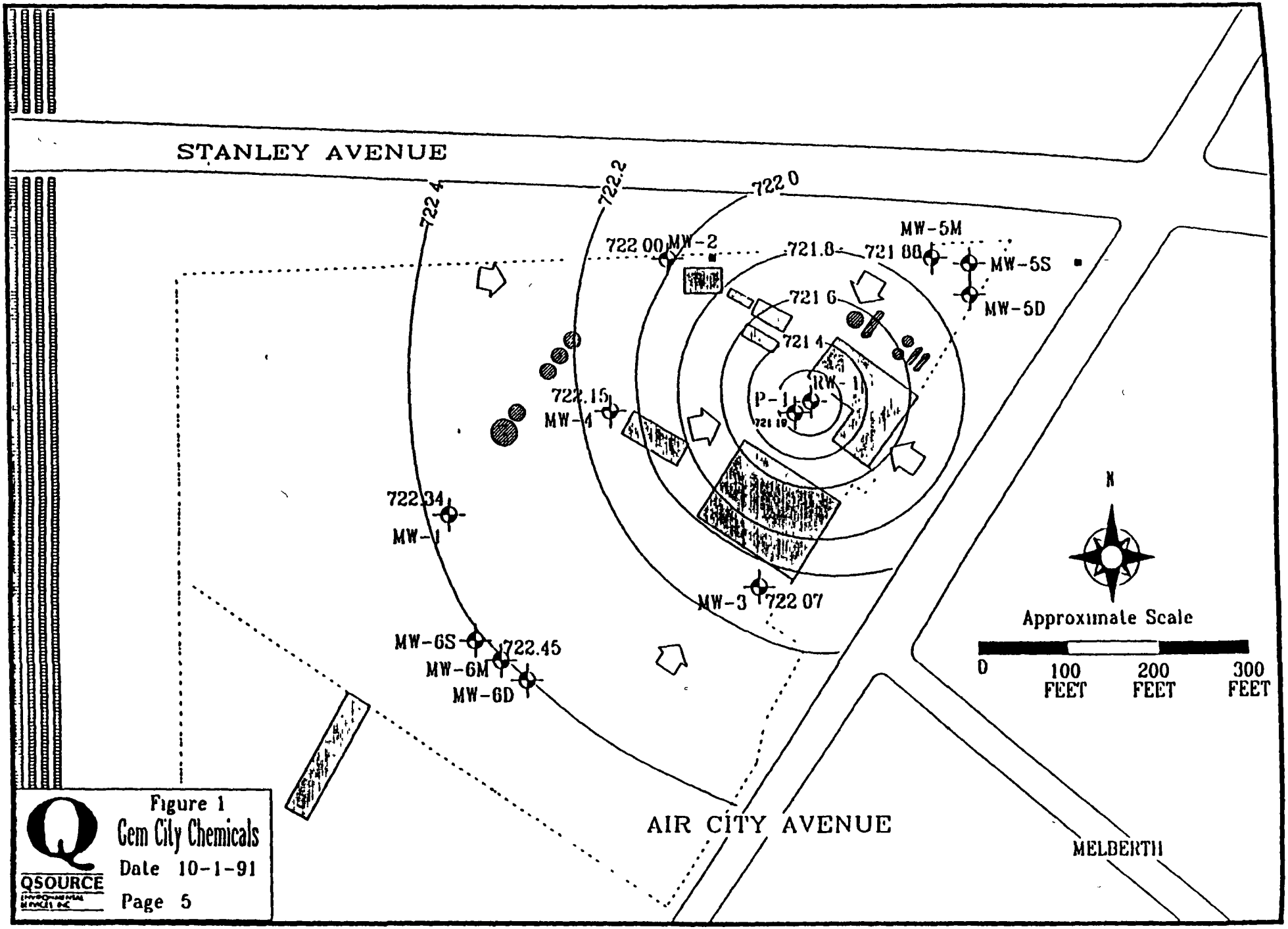


Figure 1
Cem City Chemicals
Date 10-1-91
Page 5

QSOURCE

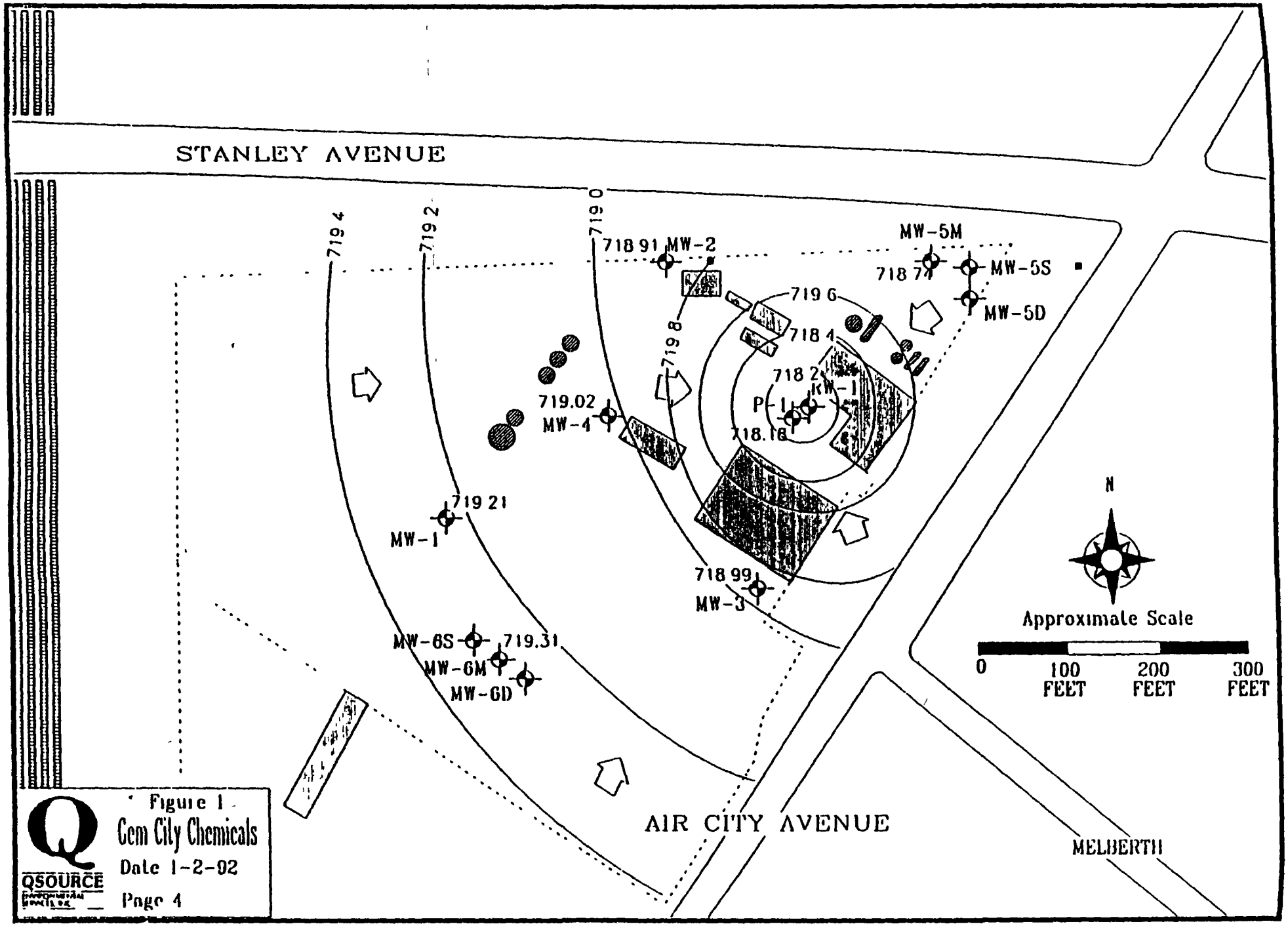


Figure 1
Gem City Chemicals
Date 1-2-92
Page 4

QSOURCE

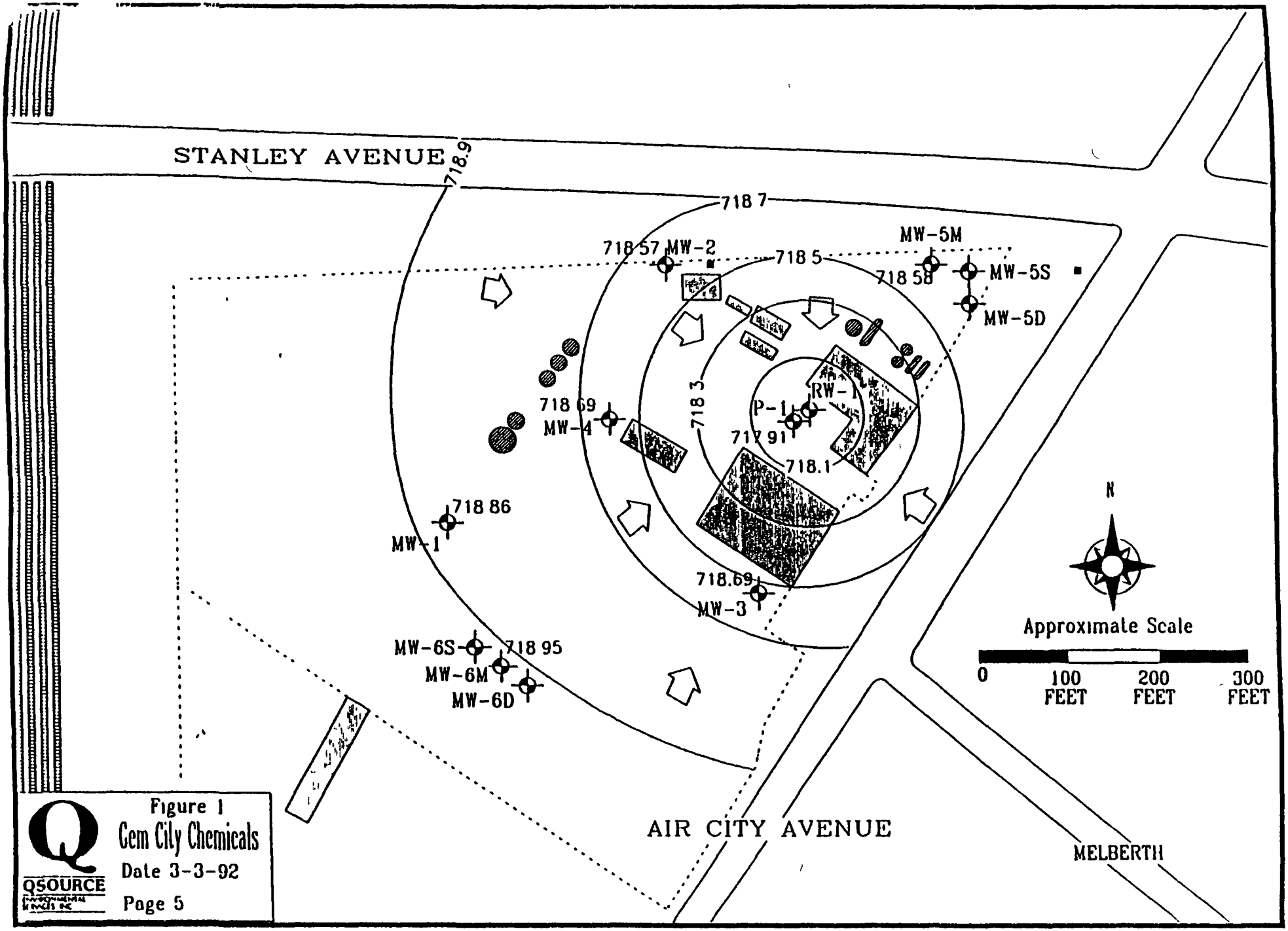


Figure 1
Gem City Chemicals
Date 3-3-92
Page 5

QSOURCE

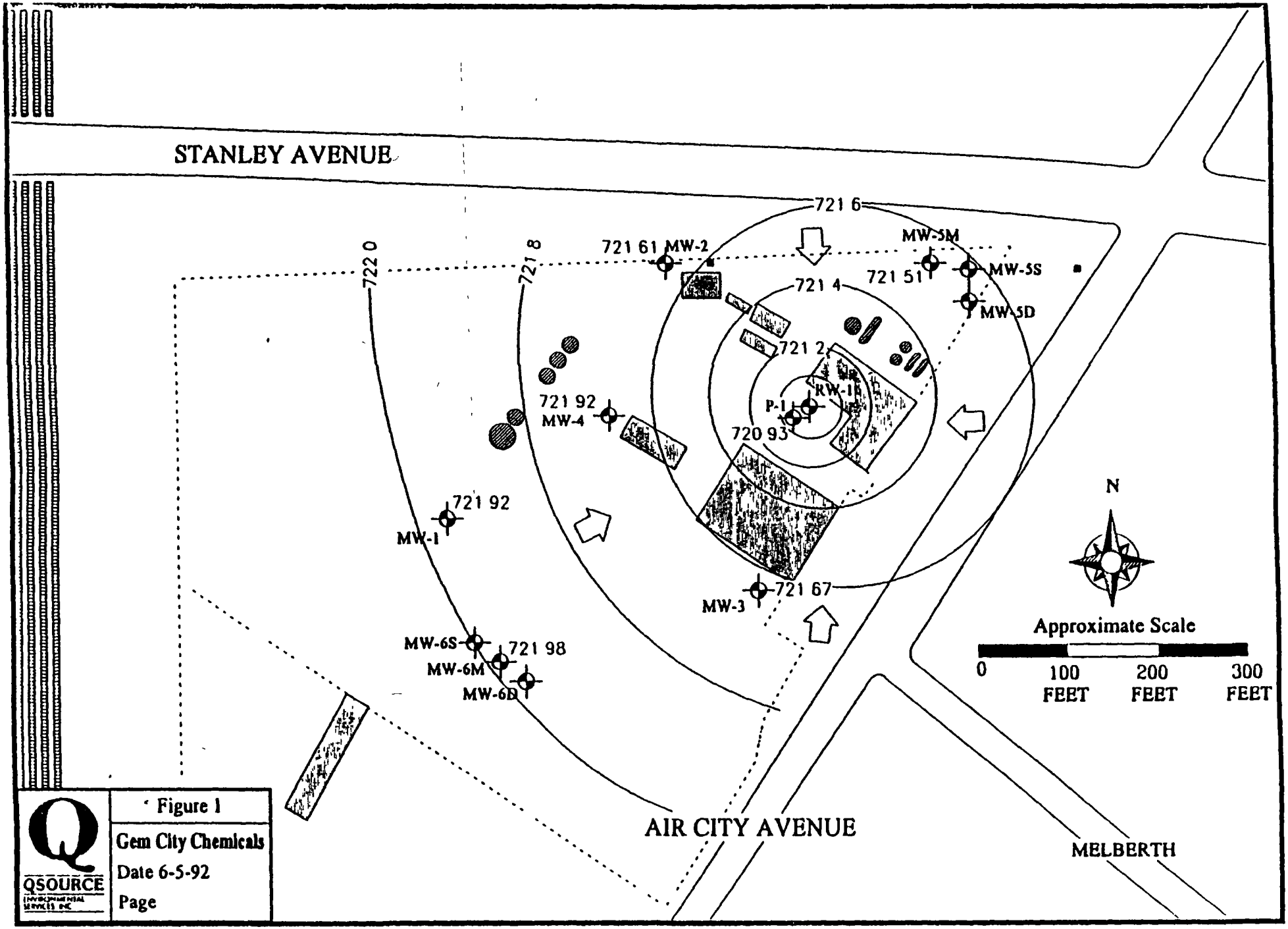

STANLEY AVENUE
721 6
722 0
721 8
721 61
MW-2
MW-5M
721 51
MW-5S
MW-5D
721 4
721 2
RW-1
P-1
721 92
MW-4
720 93
721 92
MW-1
721 67
MW-3
MW-6S
721 98
MW-6M
MW-6D
N
Approximate Scale
0
100 FEET
200 FEET
300 FEET
AIR CITY AVENUE
MELBERTH
Figure 1
Gem City Chemicals
Date 6-5-92
Page
QSOURCE

EXHIBIT E

REGIONAL WELL LOGS

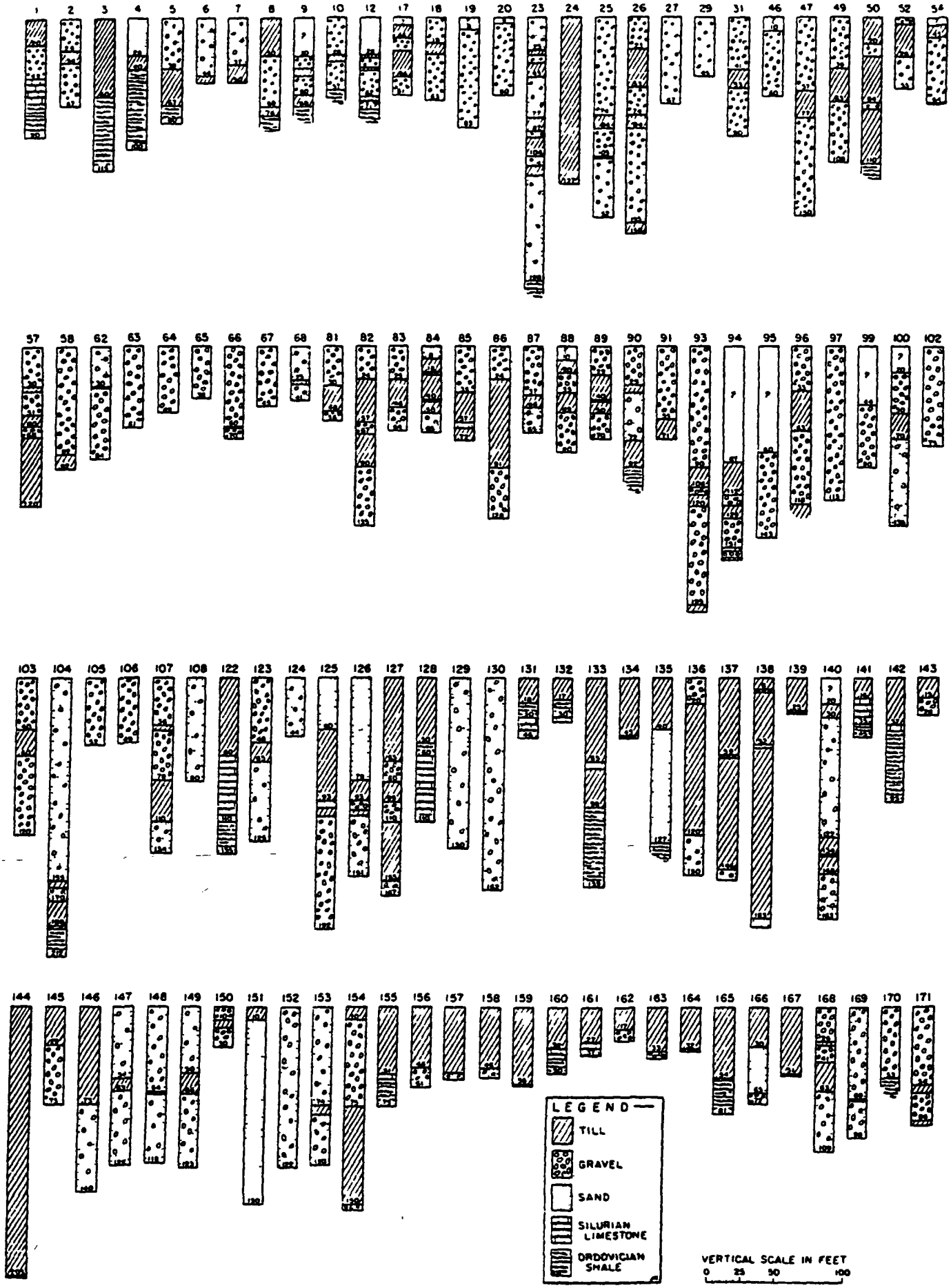


Plate 48-A Logs of wells in Montgomery County, Ohio Well numbers refer to locations shown on plate 2

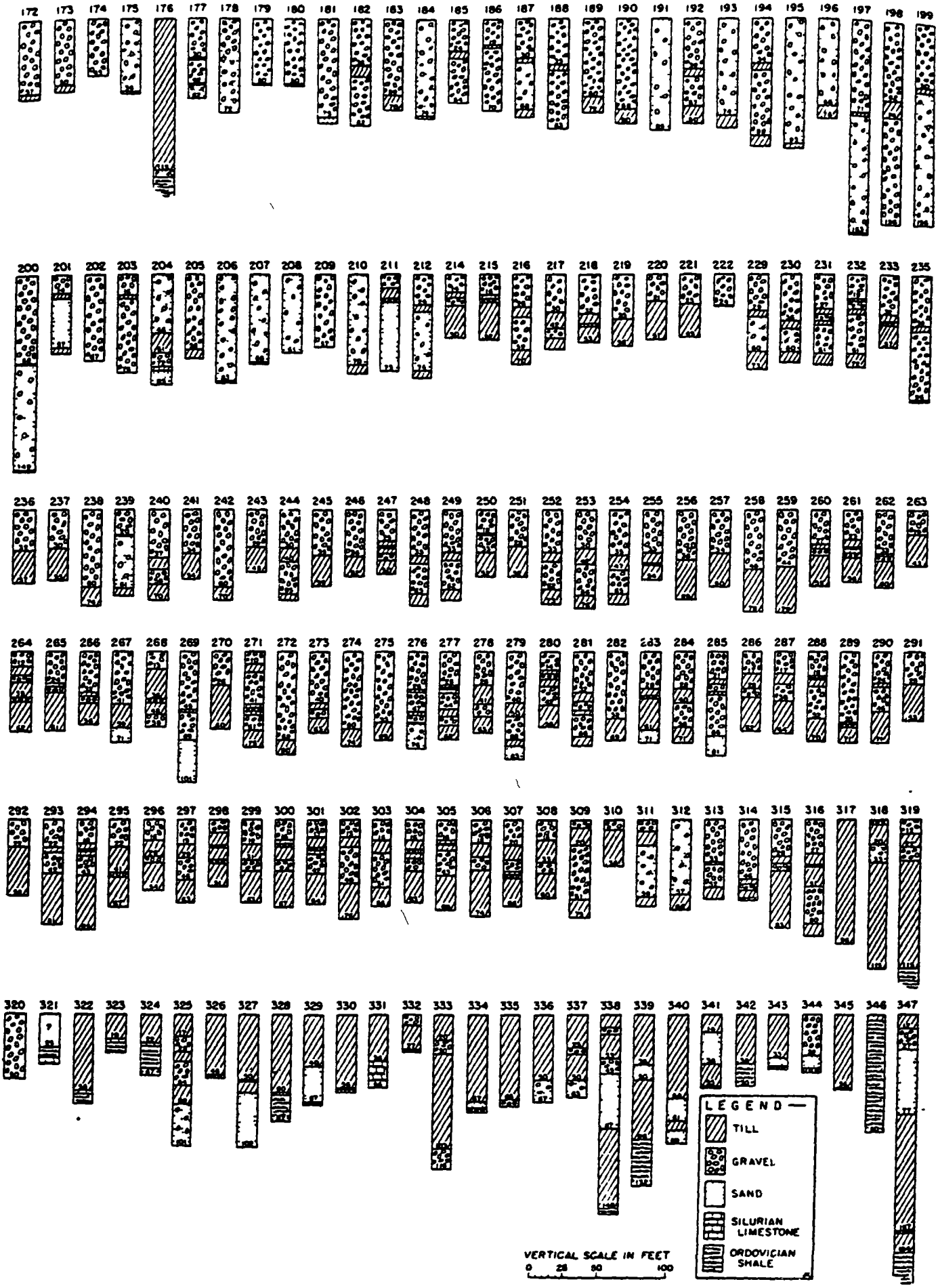


Plate 48-B. Logs of wells in Montgomery County, Ohio Well numbers refer to locations shown on plate 2

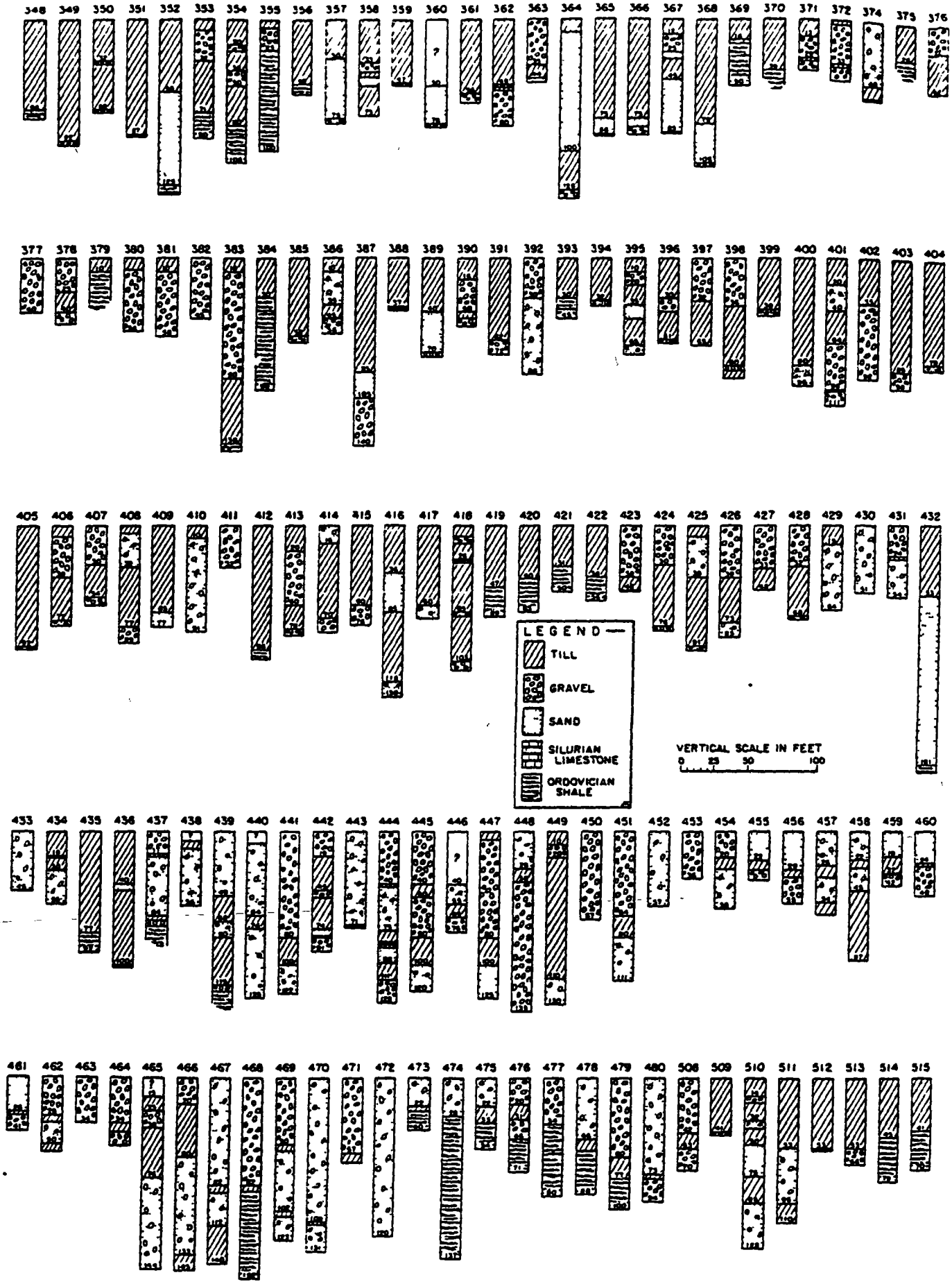


Plate 48-C Logs of wells in Montgomery County, Ohio Well numbers refer to locations shown on plate 2

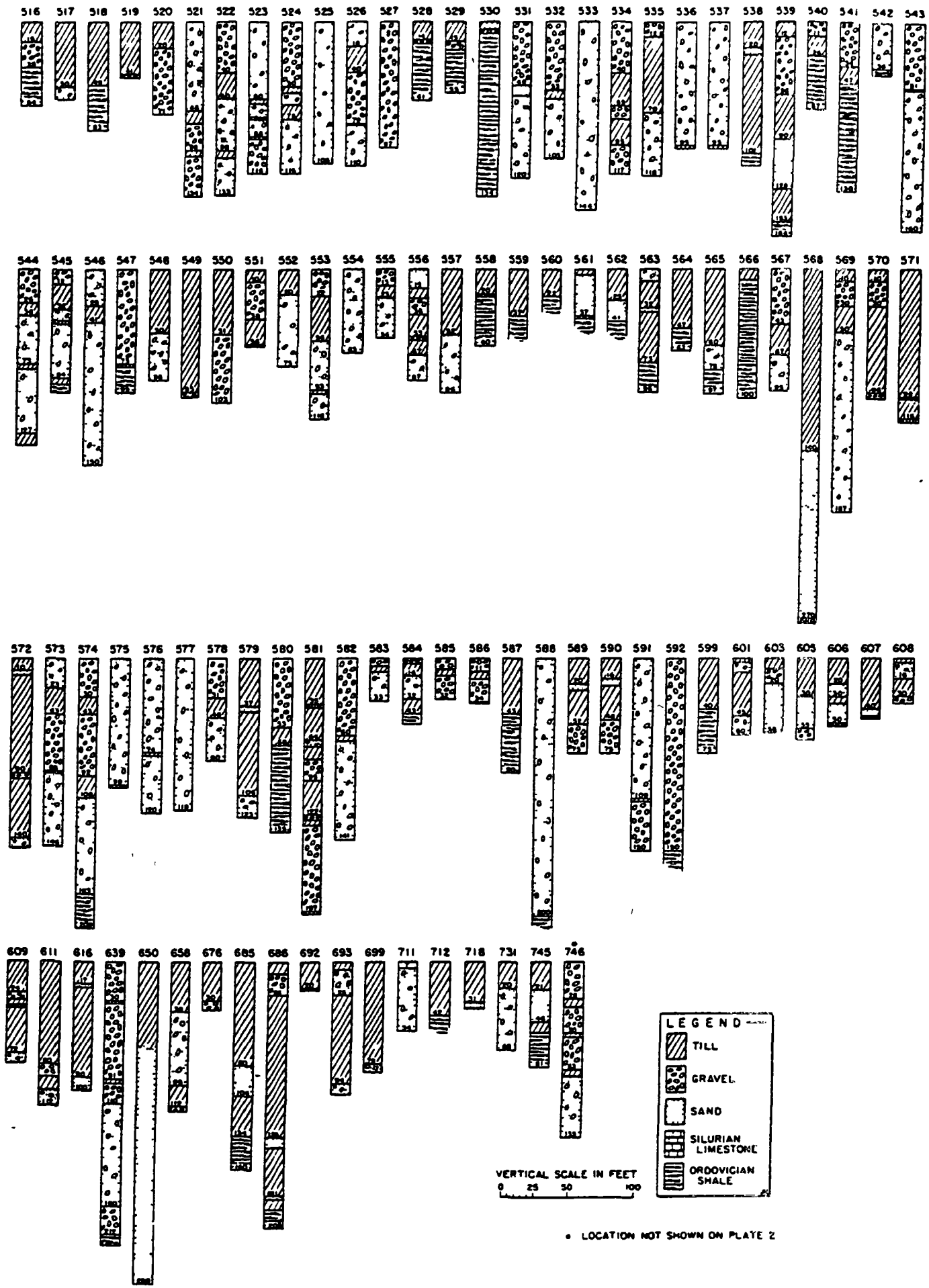


Plate 48-D Logs of wells in Montgomery County, Ohio Well numbers refer to locations shown on plate 2.

EXHIBIT F

ON-SITE TEST BORING LOGS

THE OHIO DRILLING CO.

INCORPORATED

MASSILLON, OHIO

MW1

DRILLED FOR Gem City Chemicals, Inc. - Dayton, Ohio HOLE NO. 1- 3" Test Hole

DRILLED BY Glyn Davis DRILLER COMPLETED November 6, 19 87

LOCATION Near southwest corner of plant site

CHECK OF STRATA	STRATA	TOTAL DEPTH	HEAVED	WATER FROM SURFACE
5 ft.	Dry Sand, Gravel & Clay	25 ft.		
11 ft.	Dry Sand, Gravel & Less Clay	36 ft.		
2 ft.	Sand, Fine Sand, Gravel & Clay	78 ft.		29' 5"
11 ft.	Sand, Clay & Stones	89 ft.		
	Pumped for water samples at following depths:			
	1) 35' - 37'			
	2) 40' - 43'			
	3) 48' - 51'			
	4) 55' - 58'			
	5) 61' - 64'			
	6) 68' - 71'			
	7) 71' - 73'			
	8) 78' - 83'			
	9) 87' - 89'			

THE OHIO DRILLING CO.

INCORPORATED

MASSILLON, OHIO

MW 2

DRILLED FOR Gem City Chemicals, Inc. - Dayton, Ohio HOLE NO. 2 - 5" Test Hole

DRILLED BY Alan Graber DRILLER COMPLETED December 4, 19 87

LOCATION Northwest of drum flushing shed

NO OF STRATA	STRATA	TOTAL DEPTH	HEAVED	WATER FROM SURFACE
ft.	Brown Fine Sand, Small Gravel & Clay	35 ft.		30 ft.
ft.	Brown Sand, Small Gravel & Clay	50 ft.		
5 ft.	Brown Sand & Clay	55 ft.		
ft.	Brown Sand, Gravel & Clay	75 ft.		
6 ft.	Grey Sandy Clay with Stones	81 ft.		
	Pumped for water samples at following depths:			
	1) 40 ft.			
	2) 50 ft.			
	3) 60 ft.			
	4) 70 ft.			

THE OHIO DRILLING CO.

INCORPORATED

MASSILLON, OHIO

MW-3

DRILLED FOR Gem City Chemicals, Inc. - Dayton, Ohio HOLE NO. 3- 5" Test Hole

DRILLED BY Alan Graber DRILLER COMPLETED December 10, 19 87

LOCATION Northeast corner of lot south of warehouse

KIND OF STRATA	STRATA	TOTAL DEPTH	HEAVED	WATER FROM SURFACE
25 ft.	Brown Sand, Small Gravel & Clay	25 ft.		
5 ft.	Brown Sand, Clay & Stones	30 ft.		30 ft.
5 ft.	Brown Sand & Clay Hardpan	35 ft.		
5 ft.	Brown Sand, Clay & Stones	40 ft.		
38 ft.	Brown Sand, Small Gravel & Clay	78 ft.		
5 ft.	Grey Sand, Small Gravel & Clay	83 ft.		
2 ft.	Grey Sand & Clay Hardpay	85 ft.		
	Pumped for water samples at following depths:			
	1) 41 ft.			
	2) 50 ft.			
	3) 59 ft.			
	4) 69 ft.			
	5) 78 ft.			

THE OHIO DRILLING CO.

INCORPORATED

MASSILLON, OHIO

MW4

FOR Coe City Chemicals, Inc. — Dayton, Ohio — HOLE NO. 4 - 5" Test Hole

BY Alan Graber DRILLER — COMPLETED January 6, 19 88

LOCATION In aisle between drum storage areas

# OF STRATA	STRATA	TOTAL DEPTH	CASED	WATER FROM SURFACE
8 ft.	Sand, Clay & Gravel	8 ft.		
32 ft.	Sand, Clay & Small Stones	40 ft.		32 ft.
5 ft.	Sand, Gravel & Clay	45 ft.		
	Pumped for water sample at depth of 40 ft.			

LOG OF BORING

MW-5s

PROJECT NUMBER:	PROJECT NAME: Gem City Chemicals		
BORING NUMBER: MW5-S	ELEVATION:	DATE STARTED: 8/9/88	
COORDINATES:		DATE COMPLETED: 8/14/88	
DRILLING METHODS: H.S.A. with S.S.S.		PAGE: 1 OF 1	
ENGINEER/GEOLOGIST: G. Clyburn		GWL: 32 AT	HRS.
DRILLER: G.J. Thelen			

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
5	5	16-15-10		black clay topsoil course sand and gravel					
10	10	10-26-12		fine to medium tan sand with medium gravel, dry					
15	15	12-20-21		grey silty clay, dry					
20	20	36-34-31		fine to course tan sand with gravel, dry					
25	25	38-39-31							
30	30	24-29-38		medium to course sand with large gravel moist at 30' wet at 32'					
35	35	23-28-19							
40	40	34-45-41							
45	45	26-41-24		fine sand and gravel, wet					

NOTES:

Bottom of boring at 50'

QSOURCE ENGINEERING, INC.

LOG OF BORING

MW-5M

PROJECT NUMBER:	PROJECT NAME: Gem City Chemicals	
BORING NUMBER: MW5-M	ELEVATION:	DATE STARTED: 8/18/88
COORDINATES:		DATE COMPLETED: 8/26/88
DRILLING METHODS: H S A with S.S.S.		PAGE: 1 OF 2
ENGINEER/GEOLOGIST: G. Clyburn		GWL: AT HRS.
DRILLER: G. J. Thelen		

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
				black clay top soil		NA	NA	NA	
5	5	14-9-12		course sand and gravel					
10	10	21-15-9		fine to medium tan sand with medium gravel, dry					
15	15	6-23-16							
				greysilty clay, dry					
20	20	34-37-30		fine to very course tan sand with gravel, dry					
25	25	36-48-37							
30	30	29-36-21		medium to course sand with large gravel moist at 30' 6" wet at 32' 8"					
35	35	24-24-27							
40	40	34-12-21							
45	45	21-23-30		fine sand and gravel, wet					
	50	20-28-34							

NOTES:

QSOURCE ENGINEERING, INC.

LOG OF BORING, cont.

PROJECT NUMBER:	PROJECT NAME: Gem City Chemicals		
BORING NUMBER: MW5-M	ELEVATION:	DATE STARTED: 8/18/88	
COORDINATES:		DATE COMPLETED: 8/26/88	
DRILLING METHODS: H.S.A. with S.S.S		PAGE: 2 OF 2	
ENGINEER/GEOLOGIST: G. Clyburn		GWL: 32'8" AT . HRS.	
DRILLER: G.J. Thelen			

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
55	55	21-34-28		course grey sand and gravel					
60	60	20-30-31							
65									

NOTES:

Bottom of Boring at 60'

QSOURCE ENGINEERING, INC.

LOG OF BORING

MW-5d

PROJECT NUMBER:	PROJECT NAME: Gem City Chemicals		
BORING NUMBER: MW5-D	ELEVATION:	DATE STARTED: 9/6/88	
COORDINATES:		DATE COMPLETED: 9/7/88	
DRILLING METHODS: H.S.A. with S.S.S.		PAGE: 1 OF 2	
ENGINEER/GEOLOGIST: G. Clyburn		GWL: 32' AT	HRS.
DRILLER: Moody's of Dayton Inc.			

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
0				black clay top soil		NA	NA	NA	
				course sand and gravel					
5	S-5	10-8-7							
				fine to medium tan sand with medium gravel, dry					
10	S-10	14-16-22							
15	S-15	34-38-23							
				grey clay/silt dry					
20	S-20	30-31-37		fine to very course tan sand with gravel, dry					
25	S-25	54-60-68							
				medium to course sand with large gravel moist at 30'					
30	S-30	24-28-38		wet at 32"					
35									
40									
				fine sand and gravel, wet					
45									

NOTES: Split spoon samples were taken at 18" intervals

QSOURCE ENGINEERING, INC.

LOG OF BORING, cont.

PROJECT NUMBER:	PROJECT NAME: Gem City Chemicals		
BORING NUMBER: MW 5- D	ELEVATION:	DATE STARTED: 9/6/88	
COORDINATES:		DATE COMPLETED: 9/7/88	
DRILLING METHODS: H.S.A. with S.S.S		PAGE: 2 OF 2	
ENGINEER/GEOLOGIST: G.Clyburn		GWL: AT HRS.	
DRILLER: Moody's of Dayton, INc.			

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
55				course grey sand and gravel	N	NA	NA	NA	
60									
65									
70									
75		100-108							
80	80	156		dense, grey clay "hardpan"					
85									
90									
95									

NOTES:

Bottom of boring at 85'

QSOURCE ENGINEERING, INC.

MOODY'S
of Dayton, Inc.

P O Box 123
4359 Infirmary Road
Miamisburg, Ohio 45342
513-859-4482

TEST BORING FIELD LOG

RECEIVED SEP 20 1989

MW 5d

CUSTOMER	Gem City Chemical	BORING NO	MW N80	PAGE	1
SITE LOCATION	Stanley Ave & Air City Drive	JOB NO	48338		
DATE STARTED	9/6/88	DATE FINISHED	9/7/88	SURFACE ELEV	
WEATHER	good	DRILLER	Williams	CREW	Bond

DEPTH	MATERIAL DESCSRIPTION AND REMARKS	SAMPLE NO	SAMPLE TYPE	DEPTH	BLOW COUNT	N' BLOWS PER FT	REC
[illegible]'	Topsoil			0 - 5			
[illegible]	Dirty sand and gravel	1	SS	5 - [illegible].5	10-8-7		
[illegible].5'	Sand	2	SS	10 - 11.5	14-16-22		
[illegible]-16'	Clay streak	3	SS	15 - 16.5	34-38-21		
		4	SS	20 - 21.5	30-31-37		
[illegible]-80	Sand	5	SS	25 - 26.5	54-60-68		
		6	SS	30 - 31.5	24-28-38		
[illegible]'	Tight gray clay	7	SS	80 - 81.5	100-108-156		
	Augers to 80'. S.S. to 81.5'						
	Augered to 30'. Pulled augers and put in						
	plug and [illegible] to 80'.						
	2" PVC well set at 80'.						

METHOD OF DRILLING
AUGER X SIZE 4½
ROTARY SIZE(S)
AIR MUD WATER
OTHER CME-75
MACHINE

WATER LEVELS
INITIAL
COMPLETION
24 HR
OTHER

TYPE AND SIZE SAMPLER
A SPLIT SPOON (2")
B SHELBY TUBE ( )
C NX CORE
D OTHER

LOG OF BORING

MW-6s

PROJECT NUMBER:	PROJECT NAME: Gem City Chemicals	
BORING NUMBER: MW6-S	ELEVATION:	DATE STARTED: 9/5/88
COORDINATES:		DATE COMPLETED: 9/7/88
DRILLING METHODS: H.S.A. with S.S.S.		PAGE: 1 OF 1
ENGINEER/GEOLOGIST: G. Clyburn		GWL: 32'6" AT HRS.
DRILLER: G.J. Thelen		

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
				black stained course sand and gravel, dry		NA	NA	NA	
5				course sand and gravel, dry					
10									
15									
20				fine to medium brown sand and gravel, dry					
25				moist at 30'					
30				wet at 32'6"					
35									
40				medium to course sand with large gravel					
45									

NOTES:

Bottom of boring at 48'

QSOURCE ENGINEERING, INC.

LOG OF BORING

MW-6m

PROJECT NUMBER:	PROJECT NAME: Gem City Chemicals		
BORING NUMBER: MW6-M	ELEVATION:	DATE STARTED: 8/28/88	
COORDINATES:		DATE COMPLETED: 8/31/88	
DRILLING METHODS: H.S.A. with S.S.S.		PAGE: 1 OF 2	
ENGINEER/GEOLOGIST: G.Clyburn		GWL: 32' AT	HRS.
DRILLER: G.J. Thelen			

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
5	5	26-34-12		black stained course sand with large gravel dry		NA	NA	NA	
				course sand and gravel, dry					
10	10	21-23-31							
15	15	12-23-27							
20	20	24-24-31							
25	25	21-36-30		fine to medium brown sand and gravel, dry					
30	30	6-21-15		moist at 30'5"					
				wet at 32'					
35	35	12-26-31							
40	40	18-28-31		medium to course sand with large gravel					
45	45	21-9-25							

NOTES:

SOURCE ENGINEERING, INC.

LOG OF BORING, cont.

PROJECT NUMBER:	PROJECT NAME: Gem City Chemicals		
BORING NUMBER: MW6-M	ELEVATION:	DATE STARTED: 8/28/88	
COORDINATES:		DATE COMPLETED: 8/31/88	
DRILLING METHODS: H.S.A. with S.S.S.		PAGE: 2 OF 2	
ENGINEER/GEOLOGIST: G. Clyburn		GWL: 33' AT	HRS.
DRILLER: G. J. Thelen			

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
55	55	34-31-30		course grey sand and gravel, wet					
60	60	21-28-25							
65									

NOTES: Bottom of boring at 60'

QSOURCE ENGINEERING, INC.

LOG OF BORING

MW6-D

PROJECT NUMBER:	PROJECT NAME: Gem City Chemicals		
BORING NUMBER: MW6-D	ELEVATION:	DATE STARTED: 9/1/88	
COORDINATES:		DATE COMPLETED: 9/5/88	
DRILLING METHODS: H.S.A. with S.S.S.		PAGE: 1 OF 2	
ENGINEER/GEOLOGIST: G. Clyburn		GWL: 32' AT	HRS.
DRILLER: Moody's of Dayton, INC.			

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
0				black stained course sand with large gravel dry		NA	NA	NA	
5				course sand and gravel dry					
10									
15									
20				fine to medium brown sand and gravel, dry					
25									
30				moist at 30'					
35				wet at 32'					
40				medium to course sand with large gravel					
45									

NOTES:

QSOURCE ENGINEERING, INC.

LOG OF BORING, cont.

PROJECT NUMBER:	PROJECT NAME: Gem City Chemicals	
BORING NUMBER: MW6-D	ELEVATION:	DATE STARTED: 9/1/88
COORDINATES:		DATE COMPLETED: 9/5/88
DRILLING METHODS: H.S.A. with S.S.S.		PAGE: 2 OF 2
ENGINEER/GEOLOGIST: G. Clyburn		GWL: 32 AT HRS.
DRILLER: Moody's of Dayton, Inc.		

DEPTH	SAMPLE TYPE & NO.	BLOWS ON SAMPLER PER	RECOVERY	DESCRIPTION	USCS SYMBOL	PROFILE	CASING BLOWS PER	ROCK RECOVERY % / RQD%	REMARKS
55				course grey sand and gravel, wet					
60									
65									
70									
75									
80									
85	85	35-60-68							
				medium to course grey sand and gravel, wet					
90	90	48-70-127							
				dense grey clay "hardpan"					
95									

NOTES:

Bottom of boring at 90'

QSOURCE ENGINEERING, INC.

MOODY'S
of Dayton, Inc.

P O Box 123
4359 Infirmary Road
Miamisburg, Ohio 45342
513-859-4482

TEST BORING FIELD LOG

MW 6.2

CUSTOMER. Gem City chemical BORING NO MW 90 S PAGE. 1

NAME & LOCATION Stanley Ave & Air City Drive JOB NO 48338

DATE STARTED 9/1/88 DATE FINISHED 9/5/88 SURFACE ELEV..

WEATHER Good DRILLER Williams CREW Bond

DEPTH	MATERIAL DESCSRIPTION AND REMARKS	SAMPLE NO	SAMPLE TYPE	DEPTH	BLOW COUNT	N BLOWS PER FT	REC
0-5'	Black dirty sand and gravel						
5-20'	Coarse sand and gravel						
20-35'	Brown sand and gravel						
35-85'	Gray sand and gravel						
85-90'	Sand	1	SS	85 - 87	35-60-68		
90'	Gray clay	2	SS	90 - 91.7	100/3 48-70-127		
	Augers to 90'						
	S.S. to 91'9"						
	2" PVC well set at 90'.						

METHOD OF DRILLING
AUGER X SIZE. 4¼
ROTARY SIZE(S)
AIR MUD WATER
OTHER
MACHINE. CME-75

WATER LEVELS
INITIAL
COMPLETION
24 HR
OTHER

TYPE AND SIZE SAMPLER
A. SPLIT SPOON (2")
B SHELBY TUBE ( )
C NX CORE
D OTHER

County Permit No. _____

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

557913

RW-1

COUNTY Montgomery TOWNSHIP _____ SECTION OF TOWNSHIP _____

OWNER Gem City Chemical ADDRESS 1287 Air City Drive, Dayton, Ohio

LOCATION OF PROPERTY Same

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 30'

Type of screen Galvanized Length of screen 20'

Type of pump Goulds 300L30

Capacity of pump 300 GPM

Depth of pump setting 50'

Date of completion 3/89

BAILING OR PUMPING TEST
(specify one by circling)

Test rate N/A gpm Duration of test _____

Drawdown _____ ft Date _____

Static level (depth to water) 30'

Quality (clear, cloudy, taste, odor) _____

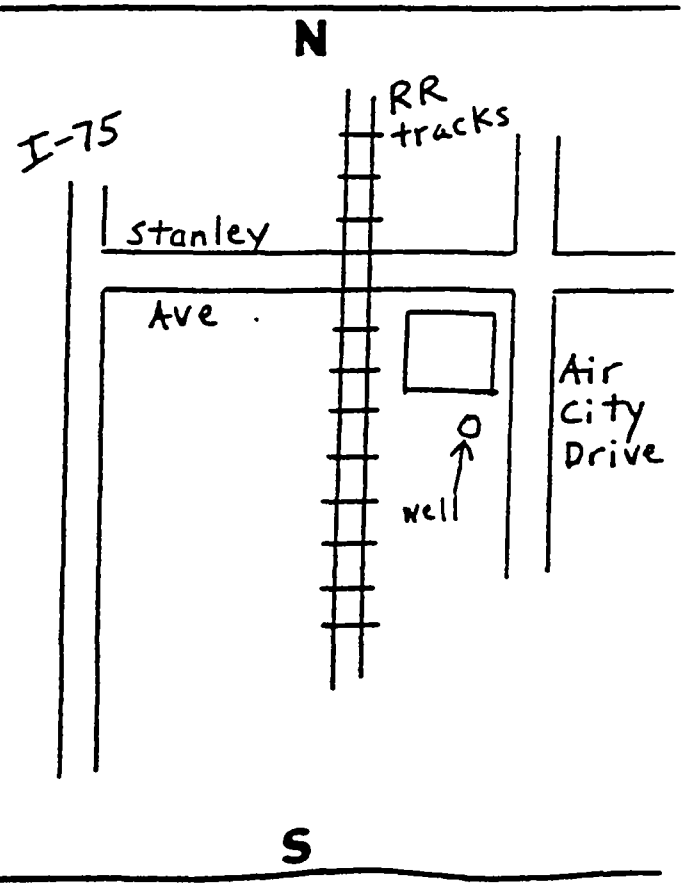
Pump installed by Moody's of Dayton, Inc.

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Concrete	0 ft	1 ft
Clay and gravel	1	8
Sand and gravel	8	19
Clay streak	19	21
Sand and gravel	21	60
Coarse sand, few gravel	60	65
Set 8" telescoping screen		
(30 slot) from 30'-50'.		
7" sump set from 50'-57'.		
Air developed 9 hours.		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Moody's of Dayton, Inc. DATE 9/21/89

ADDRESS P.O. Box 509, Miamisburg, OH 45343 SIGNED Doug Wegner

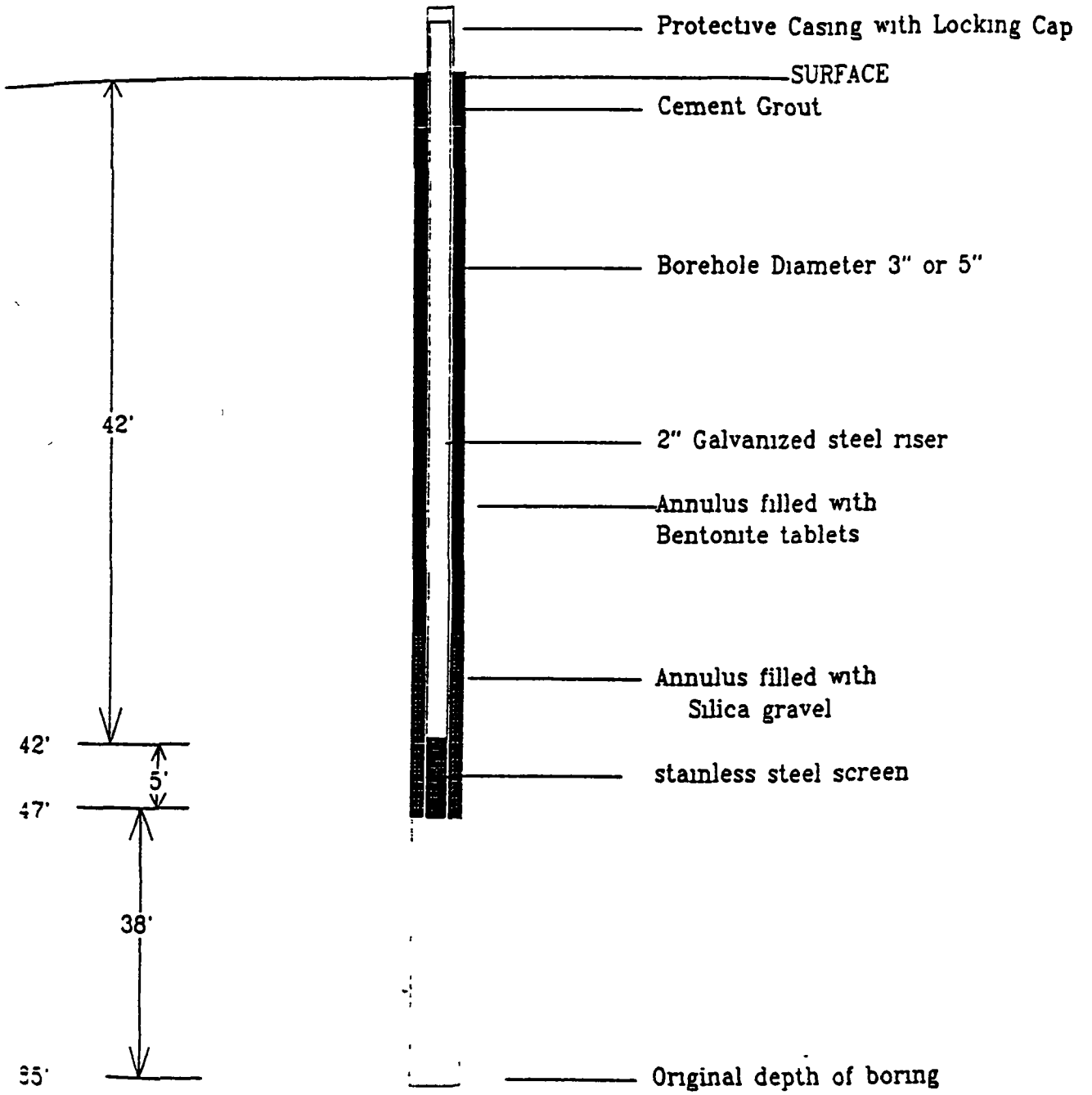
*If additional space is needed to complete well log, use next consecutive numbered form.

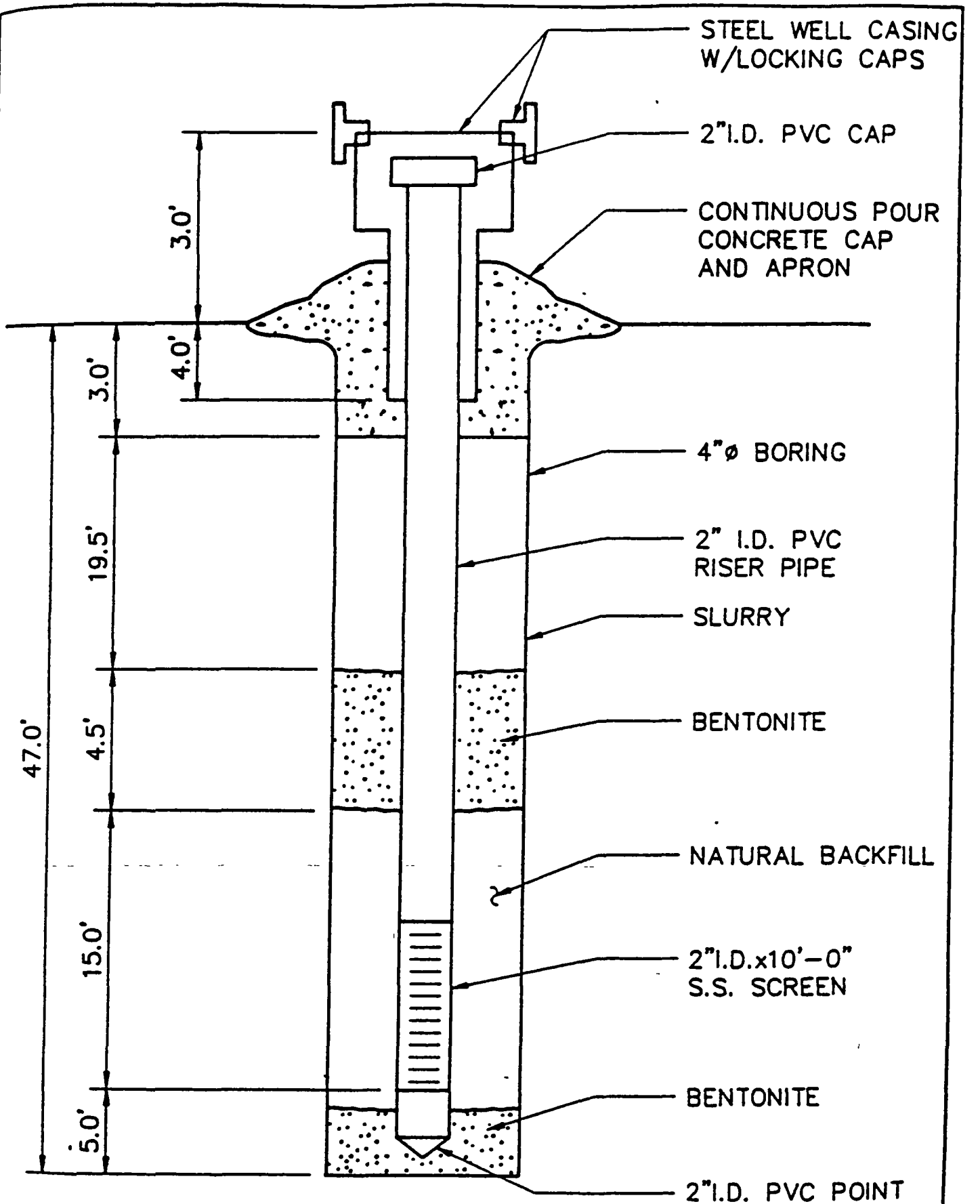
EXHIBIT G

AS-BUILT DIAGRAMS

As-Built Typical

MONITOR
WELLS
1-4
by The Ohio Drilling Company



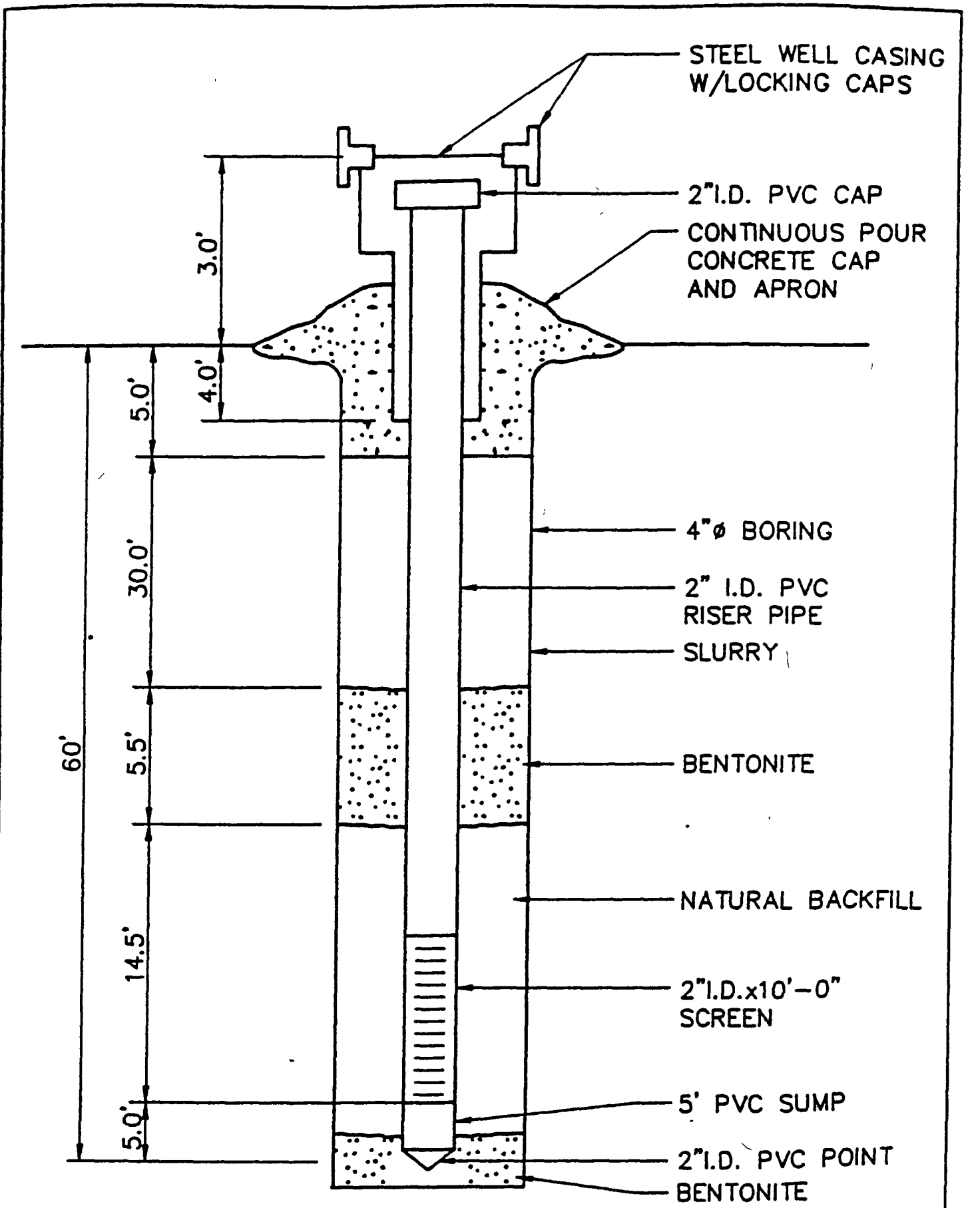


WELL CONSTRUCTION DETAILS

MONITORING WELL NO. MW5-S

SOURCE ENGINEERING, INC.

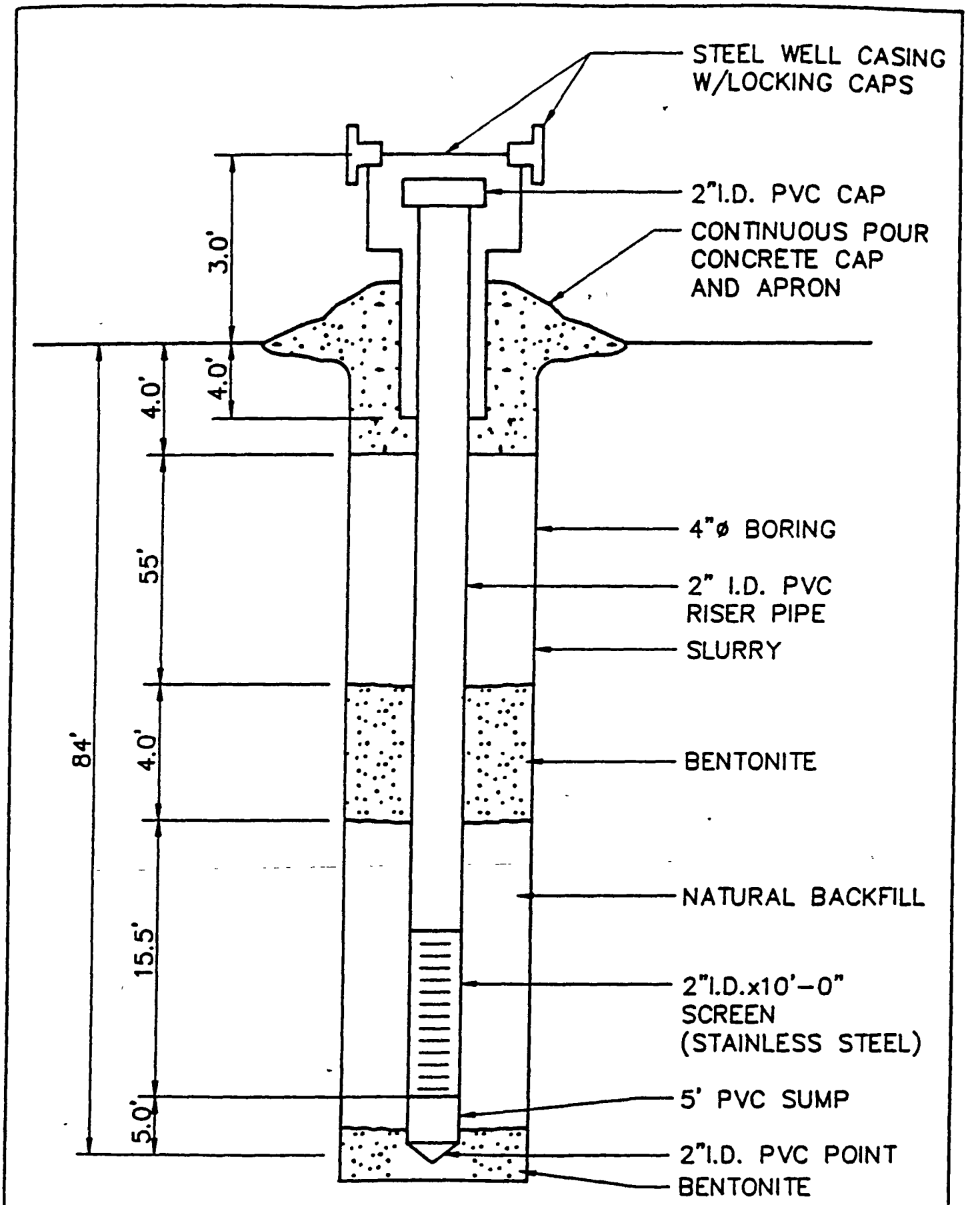
ACAD: 88134V02 /9-20-88 /1.1



WELL CONSTRUCTION DETAILS

MW-5-M

OSOURCE ENGINEERING, INC.



WELL CONSTRUCTION DETAILS

MW-5-D

ACAD: 88134V07/9-29-88/1 1

(NOT TO SCALE)

QSOURCE ENGINEERING, INC.

MOODY'S
of Dayton, Inc.

P O Box 123
4359 Infirmary Road
Miamisburg, Ohio 45342
513-859-4482

PIEZOMETER/MONITORING WELL LOG

CUSTOMER: Gem City Chemical JOB NO 48338 DATE 9/7/88 BORING NO. MW80N

ELEVATIONS. SURFACE TOP OF PIPE

TYPE WELL 2" PVC

SCREEN TYPE, SIZE & SLOT:

2" x 10' stainless steel screen, .020" slot

INSTALLATION TIME & REMARKS:

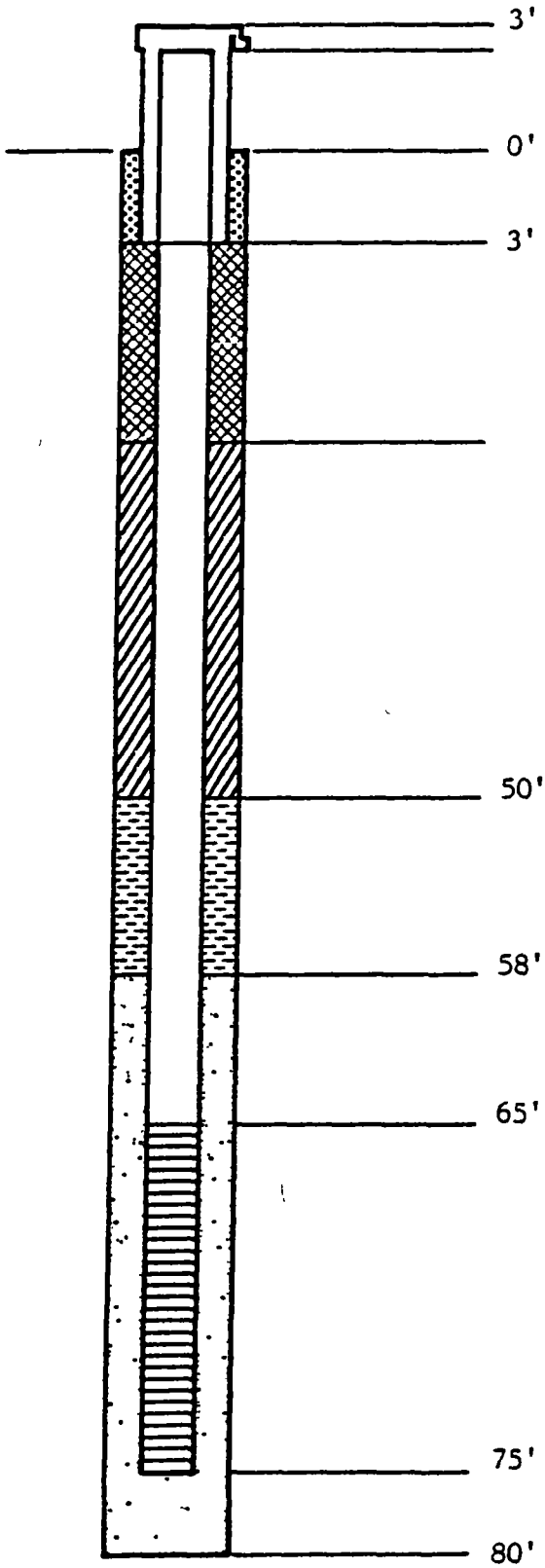
DEVELOPMENT TIME & REMARKS:

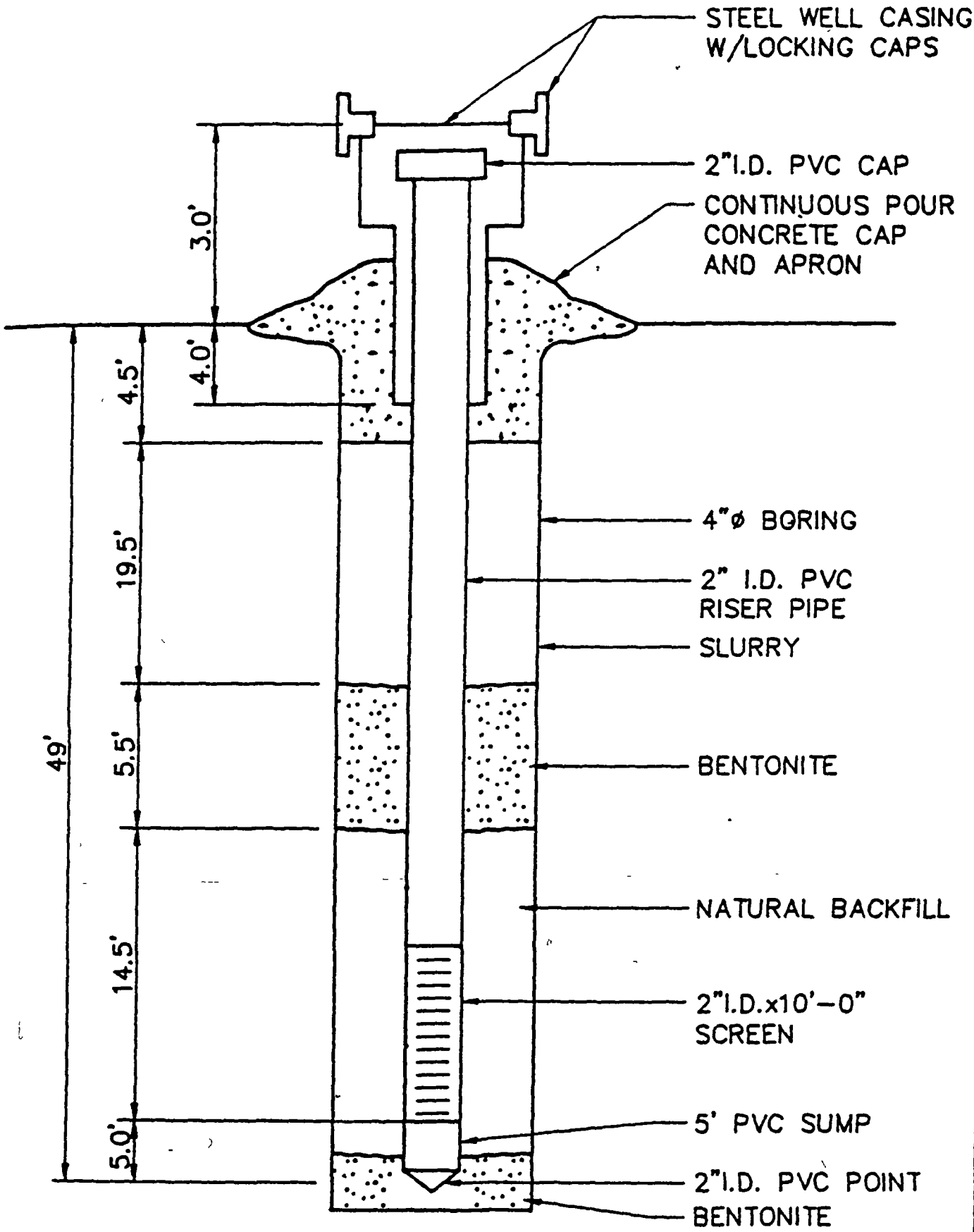
WATER LEVELS

DATE	DEPTH

COMMENTS:

22 Bags cement
4 Bags Gold Seal
4 Bags Sackrete





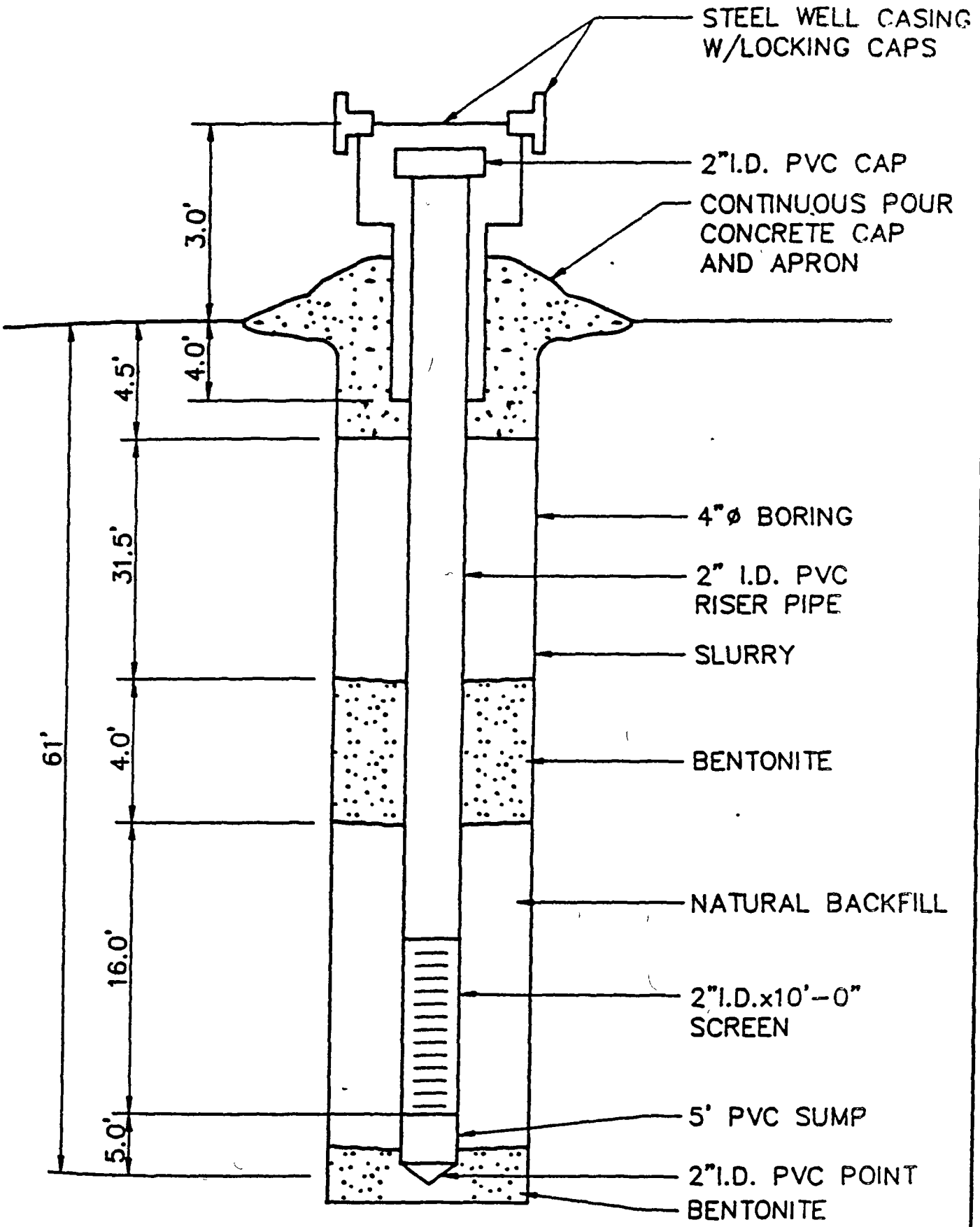
WELL CONSTRUCTION DETAILS

MW-6-S

(NOT TO SCALE)

QSOURCE ENGINEERING, INC.

ACAD: 88134V08/9-29-88/1 1



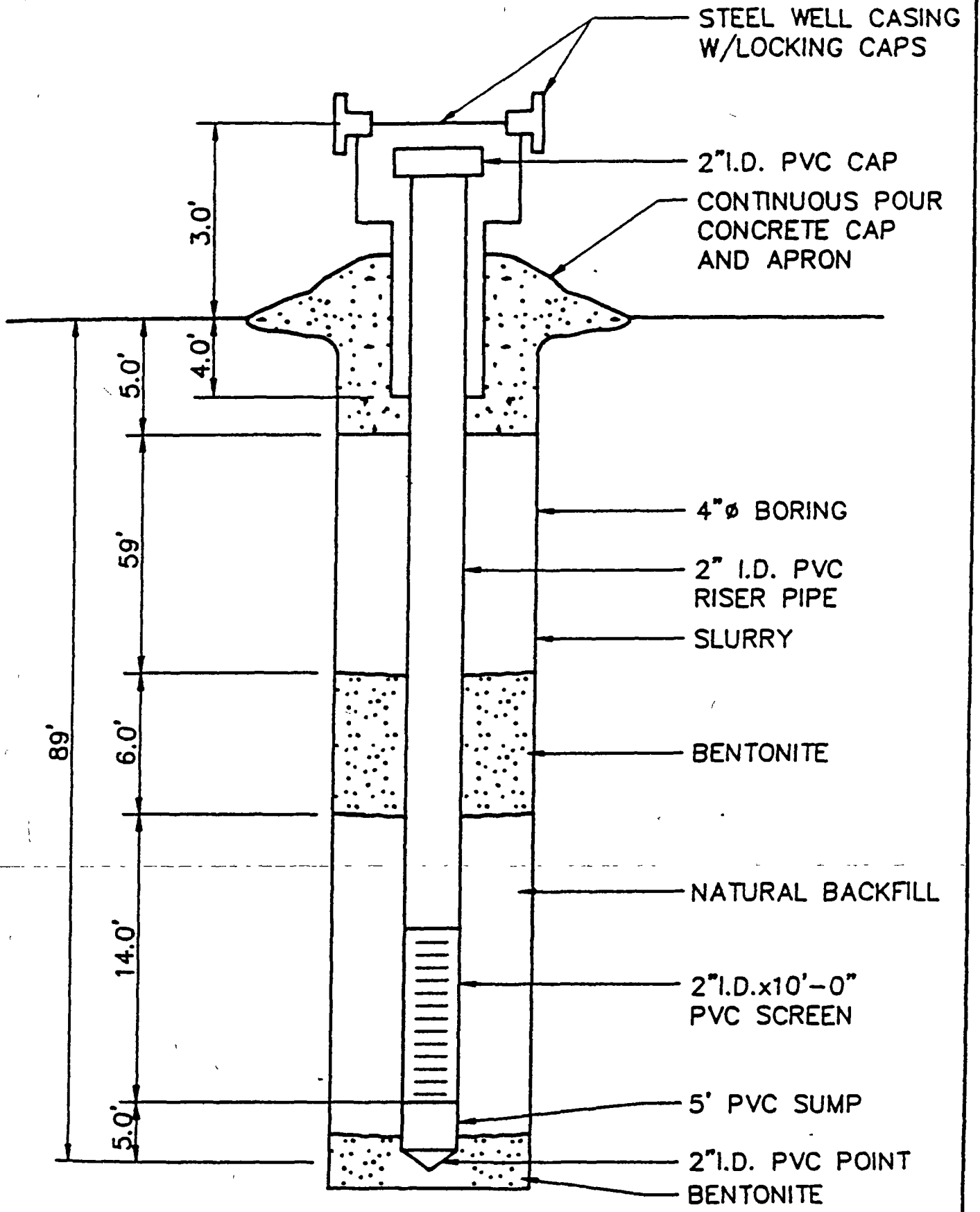
WELL CONSTRUCTION DETAILS

MW-6-M

(NOT TO SCALE)

QSOURCE ENGINEERING, INC.

ACAD: 68134V09/9-29-88/1-1



WELL CONSTRUCTION DETAILS

MW-6-D

(NOT TO SCALE)

QSOURCE ENGINEERING, INC.

ACAD: 88134V10/9-29-88/1 1

MOODY'S
of Dayton, Inc.
P O Box 123
4359 Infirmary Road
Miamisburg, Ohio 45342
513-859-4482

PIEZOMETER/MONITORING WELL LOG

CUSTOMER Gem City Chemical JOB NO 48338 DATE 9/5/88 BORING NO MW90S

MW 6d

ELEVATIONS: SURFACE TOP OF PIPE

TYPE WELL 2" PVC

SCREEN TYPE, SIZE & SLOT:

2" x 10' stainless steel screen, .020" slot

INSTALLATION TIME & REMARKS:

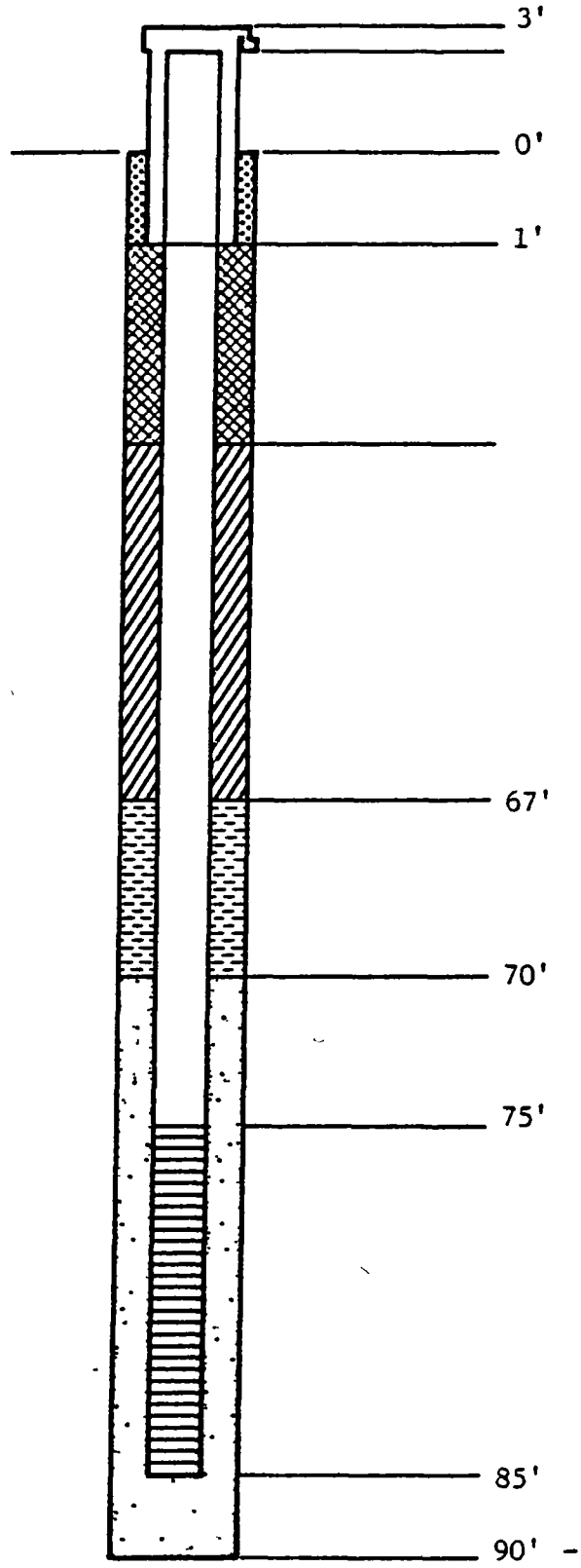
DEVELOPMENT TIME & REMARKS:

WATER LEVELS

DATE	DEPTH

COMMENTS:

24 Bags cement
4 Bags Gold Seal
3 Bags Sackrete



[illegible] of Dayton, Inc.

P O DRAWER 509 • MIAMISBURG OHIO 45342 • 513-859-4482

FILE 162 89009

FW1-1

JOB NO 49114

DATE 4/13/89

m City Chemical CITY Dayton STATE Ohio

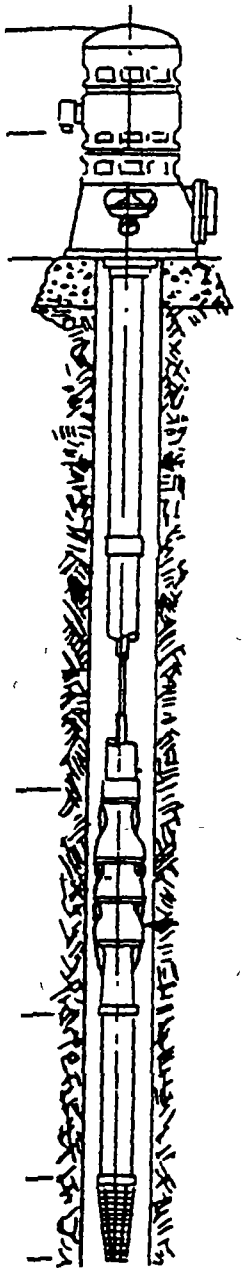
Recovery LOCATION OF WELL Back left corner of building

Goulds SERIAL NO 300L20

Franklin DIAMETER 5.5 FRAME _____ SERIAL NUMBER S14971

POWER 20 VOLTS 230 PHASE 3 CYCLES 60 RPM 3450

OAD AMPS 53.8 SERVICE FACTOR 1.15 S. F AMPS 60.6



PUMP INFORMATION

DISCHARGE SIZE 4 "

AIRLINE LENGTH N/A '

TOP SHAFT LENGTH N/A

BLACK _____

COL. SIZE 4 " GALV 50

CHECK VALVE TYPE inline SIZE 3"
Drilled hole in it.

SHAFT SIZE _____ " C.S. _____ S.S. _____

OIL TUBING SIZE _____ "

POWER CABLE SIZE 8 awg

LENGTH 69'

PUMP BOWL TYPE Goulds 300L30

DIA. 5.75 STAGES 5

SUCTION SIZE _____ LENGTH _____

STRAINER SIZE _____ LENGTH _____

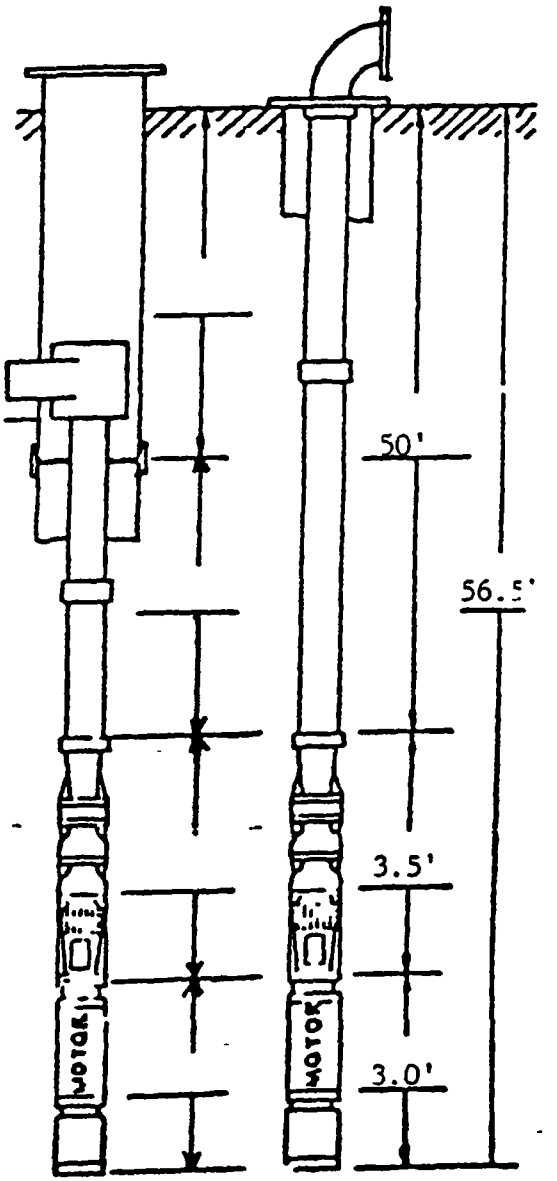
Pump shroud-machined steel & exopied.

WELL INFORMATION

WELL NO. 1 TYPE Tubular

DEPTH 60' SCREEN LENGTH 20'

DIAMETER 8" S.W.L. 30'



REMARKS. Static level and well depth measured at top of casing.

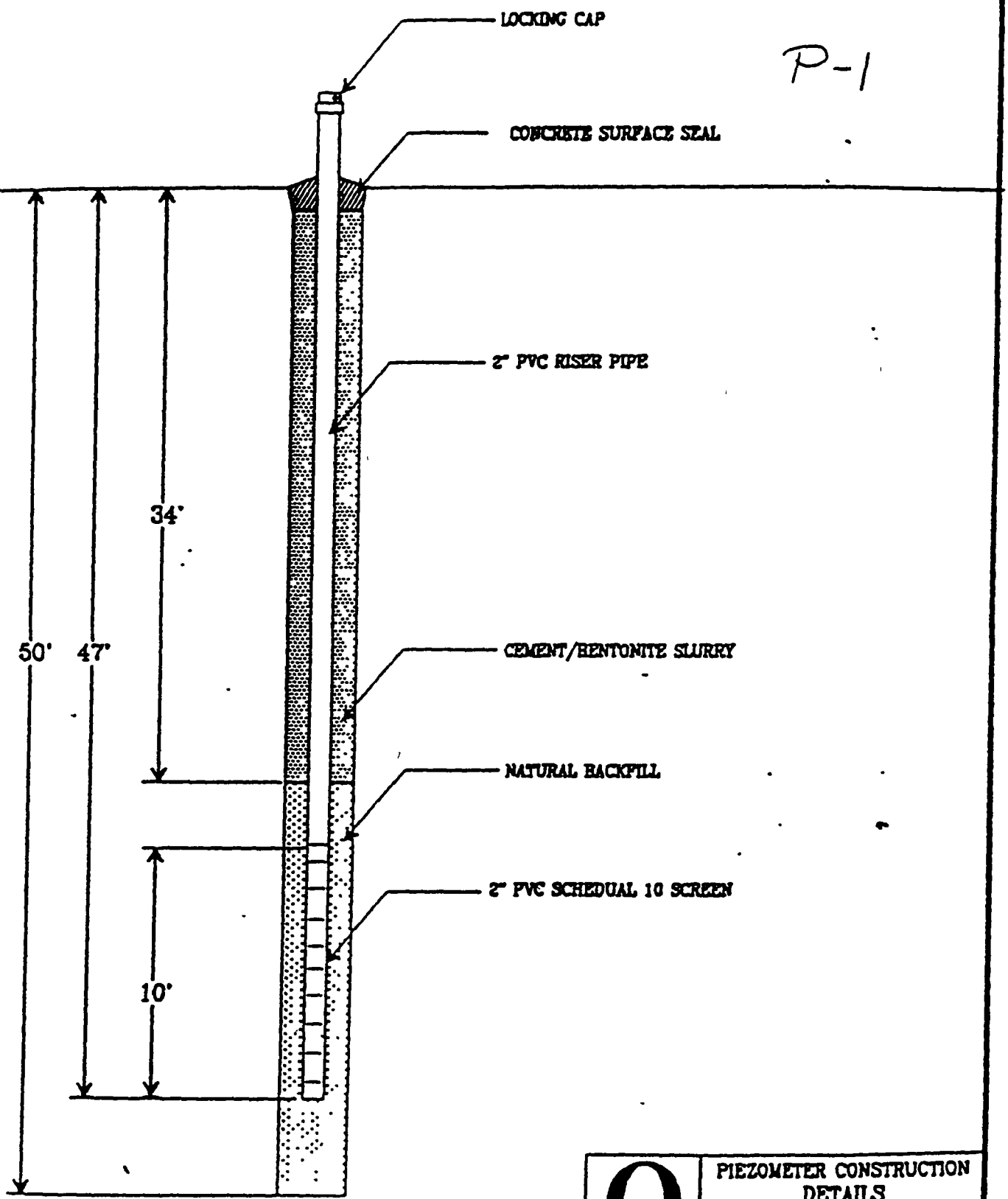
Pump went in tight because of shroud. 8" x 4" well seal on top of well.

Shawn Jones

EXHIBIT H

Piezometer Installed
Jan. 4, 1989

P-1



QSOURCE

PIEZOMETER CONSTRUCTION DETAILS
GEM CITY CHEMICALS
DAYTON, OHIO

Drawn By: DEC Proj. No. 182.0002
Date: 1/19/89 Page

Qsource Drilling Log
Vapor Extraction Wells

Well # 1 Logged by G Clyburn
Location 1287 Air City Drive
Dayton, Ohio
Date October 1988
Drill Co. John Mathes & Assoc

Depths	Description
0'-18.0'	Gravel with some sand / clay
18' 22'4"	Sand and Gravel
22'4"	bottom of boring

Installation

4" sch 40 PVC
2.5' screen length
5' sand pack
natural pack 15'3" to 7'
2' hole plug
Grout to surface

Qsource Drilling Log
Vapor Extraction Wells

Well # 3 Logged by G Clyburn
Location 1287 Air City Drive
Dayton, Ohio
Date October 1988
Drill Co John Mathes & Assoc

Depths	Description
0'-1'	Black coal -banck material
2'-3'	Red clay fill material
5'	Organic/sewer smell
22'	Sand and Gravel
22'6"	bottom of boring

Installation

4" sch 40 PVC
2.5' screen length
5' sand pack
2' hole plug
Grout to surface

Qsource Drilling Log
Vapor Extraction Wells

Well # 2 Logged by G.Clyburn
Location 1287 Air City Drive
Dayton, Ohio
Date October 1988
Drill Co John Mathes & Assoc

Depths	Description
0'-2'	Black clay balls (coal and silt)
2'-5'	Sand and Gravel
5'-16'	Gravel - with some sand and gravel
16'-22'	Fine Sand and small gravel, tan
22'	bottom of boring

Installation

4" sch 40 PVC
2.5' screen length
5' sand pack
1.5' hole plug
Grout to surface

Qsource Drilling Log
Vapor Extraction Wells

Well # 4 Logged by G Clyburn
Location 1287 Air City Drive
Dayton, Ohio
Date October 1988
Drill Co. John Mathes & Assoc.

Depths	Description
1'-2'	Dark black Gravel
3'-10'	Gravel
10'-12'4"	Gravel and sand
20'	Gravel
22'	Gravel and Sand
22'	bottom of boring

Installation

4" sch 40 PVC
2.5' screen length
5' sand pack
1'4" hole plug
Grout to surface

EXHIBIT H

AQUIFER TEST DATA

PUMP TEST DATA

Location: Gem City Chemicals
Date: 2/21/90
Technition: T. Farrel/ G. Clyburn
Start Up Time: 096:15
Duration Time: 8 hours
Flow Rate: 340 gpm
Test Point: P1 - pizometer 3// feet from pumping well
Total Drop 0.75 ft.

TIME (MINUTES)	DEPTH (FEET) GC-P1		t/r squared
0.0	28.62		0.00
0.5	NA		0.06
1.0	29.12		0.11
1.5	29.15	19.43	0.17
2.0	29.16	14.58	0.22
2.5	29.16	11.66	0.28
3.0	29.17	9.72	0.33
3.5	29.18	8.34	0.39
4.0	29.18	7.30	0.44
4.5	29.18	6.48	0.50
5.0	29.18	5.84	0.56
5.5	29.19	5.31	0.61
6.0	29.19	4.87	0.67
6.5	29.19	4.49	0.72
7.0	29.19	4.17	0.78
7.5	29.19	3.89	0.83
8.0	29.20	3.65	0.89
8.5	29.20	3.44	0.94
9.0	29.20	3.24	1.00
9.5	29.20	3.07	1.06
10.0	29.20	2.92	1.11
10.5	29.20	2.78	1.17
11.0	29.20	2.65	1.22
11.5	29.20	2.54	1.28
12.0	29.20	2.43	1.33
12.5	29.21	2.34	1.39
13.0	29.21	2.25	1.44
13.5	29.21	2.16	1.50
14.0	29.21	2.09	1.56
14.5	29.21	2.01	1.61
15.0	29.22	1.95	1.67
15.5	29.22	1.89	1.72
16.0	29.22	1.83	1.78
16.5	29.22	1.77	1.83
17.0	29.22	1.72	1.89
17.5	29.22	1.67	1.94
18.0	29.22	1.62	2.00
18.5	29.22	1.58	2.06
19.0	29.22	1.54	2.11

EXHIBIT I

19.5	29.22	1.50	2.17
20.0	29.22	1.46	2.22
20.5	29.22	1.43	2.28
21.0	29.22	1.39	2.33
21.5	29.22	1.36	2.39
22.0	29.21	1.33	2.44
22.5	29.21	1.30	2.50
23.0	29.21	1.27	2.56
23.5	29.20	1.24	2.61
24.0	29.20	1.22	2.67
24.5	29.20	1.19	2.72
25.0	29.23	1.17	2.78
25.5	29.23	1.15	2.83
26.0	29.23	1.12	2.89
26.5	29.23	1.10	2.94
27.0	29.23	1.08	3.00
27.5	29.23	1.06	3.06
28.0	29.23	1.04	3.11
28.5	29.23	1.03	3.17
29.0	29.23	1.01	3.22
29.5	29.24	0.99	3.28
30.0	29.24	0.97	3.33
30.5	29.24	0.96	3.39
31.0	29.24	0.94	3.44
31.5	29.24	0.93	3.50
32.0	29.24	0.91	3.56
32.5	29.24	0.90	3.61
33.0	29.24	0.89	3.67
33.5	29.24	0.87	3.72
34.0	29.24	0.86	3.78
34.5	29.24	0.85	3.83
35.0	29.25	0.84	3.89
35.5	29.25	0.82	3.94
40.0	29.26	0.73	4.44
45.0	29.27	0.65	5.00
50.0	29.27	0.59	5.56
55.0	29.28	0.53	6.11
60.0	29.28	0.49	6.67
65.0	29.29	0.45	7.22
70.0	29.29	0.42	7.78
75.0	29.29	0.39	8.33
80.0	29.30	0.37	8.89
85.0	29.30	0.34	9.44
90.0	29.30	0.33	10.00
95.0	29.31	0.31	10.56
100.0	29.31	0.29	11.11
105.0	29.31	0.28	11.67
110.0	29.31	0.27	12.22
115.0	29.32	0.25	12.78
120.0	29.32	0.24	13.33
135.0	29.33	0.22	15.00
150.0	29.34	0.20	16.67
165.0	29.34	0.18	18.33
180.0	29.34	0.16	20.00

195.0	29.34	0.15	21.67
210.0	29.34	0.14	23.33
225.0	29.34	0.13	25.00
24Q.0	29.34	0.12	26.67
255.0	29.35	0.12	28.33
270.0	29.35	0.11	30.00
285.0	29.35	0.10	31.67
300.0	29.36	0.10	33.33
315.0	29.36	0.09	35.00
330.0	29.36	0.09	36.67
345.0	29.37	0.09	38.33
360.0	29.37	0.08	40.00
375.0	29.37	0.08	41.67
390.0	29.37	0.08	43.33
405.0	29.37	0.07	45.00
520.0	29.37	0.06	57.78
435.0	29.37	0.07	48.33
450.0	29.37	0.07	50.00

Gem City Chemicals - Pump Test | G Clyburn

$$S_w = \frac{Q}{4\pi(T)}[2 S_p]$$

$$\boxed{T = \frac{Q}{4\pi(S_w)}[2 S_p]}$$

S_w = drawdown (ft.) .75 ft

T = transmissivity

Q = Flow rate 340 gpm or 45.5 ft^3/min

h = saturated thickness of aquifer (ft.)

r_w = radius between pumping well + test well (ft.)

h' = length of screen (ft.)

$b = \frac{h'}{h}$ = penetration ratio

S_p = drawdown factor due to partial penetration

$$\frac{h}{r_w} = \frac{70\ ft}{3.5\ ft} = 20$$

$$b = \frac{h'}{h} = \frac{(20')}{(70')} = .29 \cong .3$$

S_p (from graph) = 3.8

$$T(ft^2/min) = \frac{45.5\ ft^3/min\ [2(3.8)]}{4\pi\ (.75\ ft)}$$

$T(ft^2/min)$ = 36.7 ft^2/min or 52,849 ft^2/day

or 395,356 gpd/ft

Gem City Chem | Pump Test | G Clyburn

$T = K b$

$K = T / b$

T = transmissivity 52,848 ft²/day

K = conductivity

b_1 = saturated thickness of aquifer effected 70 ft

$$K = \frac{52\,848 \text{ ft}^2/\text{day}}{70 \text{ ft}}$$

$K =$ 754 97 ft / day $\cong$ 755 ft/day

or .1049"/sec

or .266 cm/sec

EXHIBIT J

VOC REMOVAL CALCULATIONS

REMOVAL EFFICIENCY OF THE RECOVERY WELL

The removal of volatile organic compounds by the recovery well and air stripper system is estimated by the difference between the VOC content of groundwater at the site and the concentration in the effluent, times the amount of water pumped from the ground during the time the well system has been operating. The calculations, and the assumptions behind these calculations are listed below.

1) **QUANTITY OF WATER PUMPED** - Estimated as the average pumping rate times the duration of pumping

Average pumping rate = 300 gallons/minute
Duration of pumping = 2.75 years (Nov. 1989 - July 1992)

Volume of pumped water = 300 gpm * 1440 min/day * 365 days/year * 2.75 years

Volume of pumped water = 433,620,000 gallons pumped

Weight of water pumped = volume pumped * 8.34 pounds/gallon

Weight of water pumped = 3,616,390,800 pounds

2) **CONCENTRATION OF PRODUCT IN GROUNDWATER**

Limited monitoring of the influent water to the recovery well has been done. In order to calculate the amount of product removal, a range of alternative estimates, based on data from the monitoring wells has been used.

- A MINIMUM CONCENTRATION is based on the sum of the visual estimates of the average values of the seven Volatile Organic Compounds with permitted discharge limits, for which tests are being conducted in water samples from the monitor wells. This may be too low, due to the presence of small amounts of other VOC's. For computational purposes, this is estimated at 0.5 parts per million.

- A MAXIMUM CONCENTRATION value is based on the highest reading for VOC's in any monitor well, prior to the operation of the recovery well system. The value used for computational purposes is 2.0 parts per million. This value was also used for the groundwater flow model, computed earlier. The value is probably too high, as it is based on a maximum concentration, not on average values.

- AN AVERAGE CONCENTRATION value is estimated as 1.0 part per million, chosen as a mid-range between the maximum and minimum values.

3) CONCENTRATION OF PRODUCT IN STRIPPER TOWER EFFLUENT

The air stripper system has been successful in removing over 98% of the volatile organic compounds from the pumped groundwater The concentration of volatiles in the stripper tower effluent has consistently been below 10 parts per billion (0.010 ppm), or only 0.5 to 2% of the estimated concentration of volatiles in the groundwater. Therefore, since other values in this analysis have much greater uncertainties, this value is assumed to be zero, for computational purposes.

4) WEIGHT OF PRODUCT REMOVED

The weight of product removed is computed by multiplying the estimated concentration in the groundwater by the weight of groundwater removed.

GROUNDWATER. VOC CONCENTRATION	WEIGHT OF GROUNDWATER PUMPED	WEIGHT OF PRODUCT REMOVED
2.0 ppm	3,616,390,000 lb.	7,230 lb
1.0 ppm	3,616,390,000 lb.	3,620 lb
0.5 ppm	3,616,390,000 lb.	1,810 lb.

EXHIBIT M

TEST BORING LOGS, AS-BUILT DIAGRAMS AND POTENTIOMETRIC DATA

QSOURCE ENVIRONMENTAL SERVICES, INC.

SUBSURFACE EXPLORATION LOG

PIT OR BORING # SB-1

PAGE 1 OF 1

PROJECT Gem City Chemicals, Inc. PROJECT # 193004

GENERAL SITE LOCATION 1287 Air City Avenue

STATE Ohio COUNTY Montgomery CITY/TWP Dayton SEC

LOCATION ON THE SITE SW corner of site, 90' E of west fence, 38' N of SW corner of fence

METHOD(S) 4 1/4" HSA RIG CME-75 HOLE DIA. 9 " SAMPLER & SIZE 2"x24" Split Spoon

DRILLING CO. Moody's of Dayton DRILLERS P. Ridder, J. D. Hobbs LOGGED BY J. Michael Clinch

DATE STARTED 1/12/93 DATE FINISHED 1/12/93

_ BORING COMPLETED AS A _____ OR X BACKFILLED DATE 1/12/93 MATERIAL cement, 5% bentonite

DEPTH TO WATER: Encountered at N. E. ', At completion N. A. ', After N. A. Hrs. water was at N. A.'

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV.	MATERIAL / DRILLING AND OTHER NOTES
							surface: Grass and weeds, gravel and coal visible
0							
1	1	SS	0'-2'	1.5'	4 5 7 6		SILT, some medium to fine sand, little gravel, coal fragments, 2.5 Y 3/2, moist PID = 0
3	2	SS	2'-4'	0.8'	4 6 8 10		SILT, little fine to medium sand, trace clay (stone in tip) 7.5 YR 4/6, moist PID = 0.7 -SAMPLED FOR VOCs (rig chatter, 3' to 4')
5	3	SS	4'-6'	1.4'	9 17 13 20		SAND, medium to coarse, some gravel to 1/2", little fine sand, little silt 5 Y 5/4, moist, PID = 0
7	4	SS	6'-8'	1.7'	35 32 41 35		SAND, coarse, some pebbles and broken fragments trace silt, trace fine to medium sand 2.5 Y 5/4 (silt color) dry to moist, PID = 0
9	5	SS	8'-10'	1.5'	25 19 13 16		SAND, coarse to medium, some pebbles to 1", trace silt, trace fine to medium sand 2.5 Y 5/4 (silt color) dry, PID = 0 END OF BORING AT 10'

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SUBSURFACE EXPLORATION LOG

PIT OR BORING # SB-2

PAGE 1 OF 1

PROJECT Gem City Chemicals, Inc. PROJECT # 193004

GENERAL SITE LOCATION 1287 Air City Avenue

STATE Ohio COUNTY Montgomery CITY/TWP Dayton SEC

LOCATION ON THE SITE NW corner of site, 70' E of west fence, 90' south of north fence

METHOD(S) 4 1/4" HSA RIG CME-75 HOLE DIA. 9 " SAMPLER & SIZE 2"x24" Split Spoon

DRILLING CO. Moody's of Dayton DRILLERS P. Ridder, J. D. Hobbs LOGGED BY J. Michael Clinch

DATE STARTED 1/12/93 DATE FINISHED 1/12/93

_ BORING COMPLETED AS A _____ OR X BACKFILLED DATE 1/12/93 MATERIAL cement, 5% bentonite

DEPTH TO WATER: Encountered at N. E. ', At completion N. A. ', After N. A. Hrs. water was at N. A.'

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV.	MATERIAL / DRILLING AI. OTHER NOTES
							surface: Grass and weeds, coal fragments, gravel
0							
1	1	SS	0' - 2'	1.35	4 6 7 8		SILT and SAND, fine, trace clay, coal fragments 10 YR 4/4, moist, PID = 3.5 SAMPLED FOR VOCs
2							
3	2	SS	2' - 4'	1.2'	5 6 9 11		0.2 Same as above, PID = 1.5 1.0 GRAVEL and SAND, medium to coarse trace silt, moist, 2.5 Y 7/4
4							
5	3	SS	4' - 6'	1.2'	10 15 15 18		SAND, medium to fine, some pebbles to 1", trace silt, dry to moist, 2.5 Y 7/4, PID = 0 (Pebbles to 2" diameter in auger flights)
6							
7	4	SS	6' - 8'	1.4'	20 31 29 27		SAME AS ABOVE, PID = 0
8							
9	5	SS	8' - 10'	1.5'	21 28 24 25		SAME AS ABOVE, PID = 0
10							END OF BORING AT 10'

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SUBSURFACE EXPLORATION LOG

PIT OR BORING # SB-3

PAGE 1 OF 1

PROJECT Gem City Chemicals, Inc. PROJECT # 193004

GENERAL SITE LOCATION 1287 Air City Avenue

STATE Ohio COUNTY Montgomery CITY/TWP Dayton SEC

LOCATION ON THE SITE 180' E of western fence, 100' S of northern fence, unused western parcel

METHOD(S) 4 1/4" HSA RIG CME-75 HOLE DIA. 9 " SAMPLER & SIZE 2"x24" Split Spoon

DRILLING CO. Moody's of Dayton DRILLERS P. Ridder, J. D. Hobbs LOGGED BY J. Michael Clinch

DATE STARTED 1/12/93 DATE FINISHED 1/12/93

_ BORING COMPLETED AS A _____ OR X BACKFILLED DATE 1/12/93 MATERIAL cement, 5% bentonite

DEPTH TO WATER: Encountered at N. E. ', At completion N. A. ', After N. A. Hrs. water was at N. A.'

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV.	MATERIAL / DRILLING AND OTHER NOTES
							surface: Grass, weeds, coal fragments
0							----------
				N.R.	12 6		(No recovery - redrove split spoon)
1	1	SS	0' - 2'	1.0	10 5		6" coal fragments
					6 6		6" SILT and SAND, fine to medium, little pebble
2					9 9		moist, 7.5 YR 3/2, PID = 0
					10		7" SAME AS ABOVE, SAMPLED FOR VOCs
3	2	SS	2' - 4'	1.3'	12		8" SAND, fine to medium, some pebbles (to 1")
					12		little coarse sand and granules, trace silt
4					15		dry, 2.5 Y 6/6 PID = 0
					8		PEBBLES (to 1") and SAND, medium to coarse,
5	3	SS	4' - 6'	1.3'	12		little fine sand, little very coarse sand
					13		trace silt, dry, 5 Y 7/4, PID = 0
6					15		
					12		SAME AS ABOVE, PID = 0
7	4	SS	6' - 8'	1.4'	22		(pebbles to 3" in auger flights)
					27		
8					26		
					17		SAME AS ABOVE, PID = 0
9	5	SS	8' - 10'	1.0'	30		
					52		
10					15		END OF BORING AT 10'

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SUBSURFACE EXPLORATION LOG

PIT OR BORING # P-2

PAGE 1 OF 3

PROJECT Gem City Chemicals, Inc. PROJECT # 193004

GENERAL SITE LOCATION 1287 Air City Avenue

STATE Ohio COUNTY Montgomery CITY/TWP Dayton SEC

LOCATION ON THE SITE Northwest corner, northern CaCL,tanks

METHOD(S) 4 1/4" HSA RIG CME-75 HOLE DIA. 9 " SAMPLER & SIZE 2"x24" Split Spoon

DRILLING CO. Moody's of Dayton DRILLERS P Ridder, J. D. Hobbs LOGGED BY J. Michael Clinch

DATE STARTED 1/15/93 DATE FINISHED 1/15/93

x BORING COMPLETED AS A piezometer, P-3 OR _ BACKFILLED DATE / / MATERIAL

DEPTH TO WATER: Encountered at 22 ', At completion N A. ', On 2/8/93 water was at 23.18' (TOC)

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV.	MATERIAL / DRILLING AND OTHER NOTES
							surface: gravel fill
0							
1	1	SS	0'-2'	1.4'	14 6 5 4		SAND, medium, little pebbles, little silt, moist, 2.5 Y 5/4, farker at top (4/1), disturbed (fill), PID = 0.15
2							
3	2	SS	2'-4'	0.4'	3 2 3 4		SAND, medium, little silt, little pebbles, moist, loose, PID = 0.2 (BACKFILL MATERIAL)
4							
5	3	SS	4'-6'	0.9'	3 1 2 2		SAND, medium to coarse, little very coarse sand, trace silt, loose, 2.5 Y 4/2, PID = 0 (BACKFILL MATERIAL)
6							
7	4	SS	6'-8'	1.2'	1 2 1 2		SAND, medium to coarse (BACKFILL MATERIAL) PID = 0.5
8							
9	5	SS	8'-10'	1.1'	WOR 2 2 4		SAND, medium to coarse (BACKFILL MATERIAL) PID = 0.3
10							

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SUBSURFACE EXPLORATION LOG

PROJECT Gem City Chemicals, Inc. PROJECT # 193004

PIT OR BORING # P-2

PAGE 2 OF 3

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV	MATERIAL / DRILLING AND OTHER NOTES
10					3		6" SAND (BACKFILL MATERIAL) PID = 0
	6	SS	10'-12'	0.9'	2		sharp contact
					9		5" SAND, fine to medium, and PEBBLES, trace silt, moist, 2.5 Y 7/4
12	—	—	—	—	13		
					23		SAND, coarse, some pebbles to 1", some very coarse sand and granules, trace fine sand, trace silt, moist, 2.5 Y 7/6, PID = 0
	7	SS	12'-14'	1.3'	25		
					30		
14	—	—	—	—	34		
					18		SAND, medium to coarse, some very coarse sand and pebbles, little fine sand, trace silt, moist, 2.5 Y 7/6, PID = 0.2
	8	SS	14'-16'	1.1'	25		
					27		
16	—	—	—	—	29		
					20		SAME AS ABOVE, PID = 0.1
	9	SS	16'-18'	1.5'	30		
					42		
18	—	—	—	—	40		
					50		0.8' PEBBLES and SAND, med. to coarse, trace silt
	10	SS	18'-20'	1.6'	29		
					24		0.2' SILT and very fine SAND, laminated, wet, 2.5 Y 6/8, PID = 0.1
20	—	—	—	—	23		0.6' SAND, medium, planar bedding
					13		SAND, medium, trace coarse sand, trace fine sand, 2.5 Y 6/4, moist to wet, PID = 0
	11	SS	20'-22'	1.4'	16		
					19		
22	—	—	—	—	26		
					19		SAND, coarse to very coarse, some medium sand, trace silt, faint and indistinct, silt laminae, 2.5 Y 6/6, saturated, PID = 0.2
	12	SS	22'-24'	1.8'	15		
					19		
24	—	—	—	—	21		
					12		1.1 SAME AS ABOVE
	13	SS	24'-26'	1.8'	18		
					33		0.7 SAND, very coarse, and PEBBLES, little fine to medium sand, little silt, PID = 0.2
26	—	—	—	—	33		
					35		SAND, very coarse, little pebbles (to 1") in thin, discrete layers, some fine to medium sand, little silt, saturated
	14	SS	26'-28'	1.6'	56		
					62		
28	—	—	—	—	30		
					13		SAND, coarse, some fine to medium sand, little granules, trace pebbles, trace silt, saturated, 2.5 Y 6/4
	15	SS	28'-30'	1.8'	18		
					26		
30					35		

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SUBSURFACE EXPLORATION LOG

PROJECT Gem City Chemicals PROJECT # 193004

PIT OR BORING # P-2

PAGE 3 OF 3

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV	MATERIAL	DRILLING AND OTHER NOTES
30								
					9		SAND, medium to coarse, little pebbles and	
	16	SS	30'-32'	1.4'	10		granules, little fine sand, trace silt	
					22		2.5 Y 6/6, saturated, coarsening upward	
32	—	—	———	——	20		cycles over 1 foot	
					20		SAND, medium to coarse, with pebble zones,	
	17	SS	32'-34'	1.6'	30		little fine sand, trace silt, coarsening	
					28		upward over 1.5' to 2'	
34	—	—	———	——	34			
					28		SAME AS ABOVE, with a single, 0.5' thick	
	18	SS	34'-36'	1.6'	20		pebble zone, 2.5 Y 6/6	
					26			
36	—	—	———	——	30			
					18		SAME AS ABOVE, cycle thickness about 1.5'	
	19	SS	36'-38'	2.0'	18			
					30			
38	—	—	———	——	34			
					30		GRANULES and PEBBLES, some very coarse sand,	
	20	SS	38'-40'	1.9'	33		and coarse sand, little fine sand, trace	
					24		silt, 2.5 Y 5/4, saturated	
40	—	—	———	——	21			
					8		SAND, coarse to very coarse, some granules,	
	21	SS	40'-42'	1.9'	11		little pebbles, little fine to medium sand,	
					21		trace silt, fining upward from pebbles to	
42	—	—	———	——	28		a thin fine sand zone	
					78		COBBLE ZONE (NO RECOVERY, HIGH BLOW COUNT)	
	22	SS	42'-44'	1.3'	19		0.5' SAND, coarse to very coarse, trace silt	
					14		0.8' PEBBLES, little granules, trace silt	
44	—	—	———	——	30		trace sand, saturated	
					35		1.0' SAME AS ABOVE	
	23	SS	44'-46'	1.7'	33			
					48		0.7' GRANULES and very coarse SAND, little	
46	—	—	———	——	43		pebbles, little f.-m. sand, little silt	
					30		PEBBLES, some granules and very coarse sand,	
	24	SS	46'-48'	1.5'	25		little fine sand, little silt	
					21			
48	—	—	———	——	22			
					40		SAND, coarse to very coarse, some granules,	
	25	SS	48'-50'	1.7'	21		little fine to medium sand, trace silt,	
					22		some pebbles in 2" thick zones separated	
50	—	—	———	——	24	———	by 6 inches	
							END OF BORING AT 50'	

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SUBSURFACE EXPLORATION LOG

PIT OR BORING # P-3

PAGE 1 OF 3

PROJECT Gem City Chemicals, Inc. PROJECT # 193004

GENERAL SITE LOCATION 1287 Air City Avenue

STATE Ohio COUNTY Montgomery CITY/TWP Dayton SEC

LOCATION ON THE SITE 197' E of west fence, 53' S of north fence, in line with P-1 and P-2 site

METHOD(S) 4 1/4" HSA RIG CME-75 HOLE DIA. 9 " SAMPLER & SIZE 2"x24" Split Spoon

DRILLING CO. Moody's of Dayton DRILLERS P Ridder, J. D. Hobbs LOGGED BY J. Michael Clinch

DATE STARTED 1/13/93 DATE FINISHED 1/13/93

X BORING COMPLETED AS A piezometer P-3 OR _ BACKFILLED DATE / / MATERIAL

DEPTH TO WATER: Encountered at 22 ', At completion 22.8 ', On 2/8/93 water was at 22.92' (TOC)

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV.	MATERIAL / DRILLING AND OTHER NOTES
							surface: Grass, weeds, coal fragments
0							----------
1	1	SS	0' - 2'	1.0'	13 9 5 7		7" COAL FRAGMENTS, little silt, one pebble PID = 0
2							5" SILT, little fine to medium sand, moist 10 YR 3/4, PID = 0
3	2	SS	2' - 4'	0.9'	11 8 7 8		SAND, medium to fine, some pebbles to 1", little coarse to very coarse sand, trace silt dry to moist, 2.5 Y 7/6 (silt color) PID = 0
4							
5	3	SS	4' - 6'	1.1'	10 12 16 19		SAND, medium to coarse, and PEBBLES (1/2" to 1"), little fine sand, little granules, trace silt, moist, 2.5 Y 7/6 PID = 0
6							
7	4	SS	6' - 8'	1.3'	18 29 36 37		SAND, coarse to medium, and PEBBLES, some granules, trace silt, dry to moist 2.5 Y 6/4-8/4, PID = 0 (pebbles to 2" in auger flights)
8							
9	5	SS	8' - 10'	1.3'	10 15 17 22		PEBBLES (1/2" - 1") and SAND, coarse to medium, some granules, trace silt, moist, with minor wet intervals, 2.5 Y 6/6, PID = 0 (material coarsening downward, rig chatter)
10							

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SUBSURFACE EXPLORATION LOG

PROJECT Gem City Chemicals, Inc. PROJECT # 193004

PIT OR BORING # P - 3

PAGE 2 OF 3

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV	MATERIAL / DRILLING AND OTHER NOTES
10					16		SAND, coarse to very coarse, some pebbles (1"
	6	SS	10' - 12'	1.3'	22		and pebble fragments (broken) little fine t.
					25		medium sand, trace silt, moist
12	—	—	—	—	32		2.5 Y 6/4, PID = 0
					15		GRANULES, some pebbles, some coarse to very
	7	SS	12' - 14'	1.4'	15		coarse sand, trace fine sand, trace silt,
					20		moist, 2.5 Y 6/6, PID = 0
14	—	—	—	—	20		
					18		GRANULES and PEBBLES (1/4" TO 1"), some very
	8	SS	14' - 16'	1.1'	17		coarse sand, trace silt, trace pebble frags
					13		2.5 Y 7/6 (silt color) PID = 0
16	—	—	—	—	14		
					20		PEBBLES (to 3/4") and GRANULES, some very
	9	SS	16' - 18'	1.6'	19		coarse sand, trace fine sand, trace silt
					23		2.5 Y 7/6 (silt color) PID = 0
18	—	—	—	—	35		
					15		1.2' PEBBLES and GRANULES (same as above)
	10	SS	18' - 20'	1.5'	51		(Interpretation - channel deposit)
					60		PID = 0
20	—	—	—	—	108		0.3' SAND, medium, bedded, oxidized 5 YR 5/8
					36		SAND, medium to fine, some pebbles and frags.,
	11	SS	20'-20.9'	0.8'	100/4"		trace silt, laminated, 10 YR 7/4, oxidized to
							5 YR 5/8, moist, PID = 0
22	—	—	—	—			(Heavy rig chatter and bucking)
					32		PEBBLES and SAND, fine to coarse, little silt,
	12	SS	22' - 24'	1.4'	37		saturated, 10 YR 6/6, oxidized zones
					50		PID = 0.5 (associated with water)
24	—	—	—	—	47		
					25		SAND, coarse to very coarse, little granules
	13	SS	24' - 26'	1.6'	30		trace silt, saturated, 10 YR 6/6,
					33		PID = 0.35
26	—	—	—	—	58		
					32		0.9' GRANULES, some coarse to very coarse sand
	14	SS	26' - 28'	1.8'	29		SHARP CONTACT
					31		0.9' SAND, medium, trace fine sand, trace silt
28	—	—	—	—	60		saturated, 10 YR 6/6, PID = 0.25
					31		SAND, medium to coarse, some pebbles, little
	15	SS	28' - 30'	1.9'	22		fine sand, trace silt, saturated
					22		10 YR 6/6, PID = 0.4
30					32		

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SUBSURFACE EXPLORATION LOG

PROJECT Gem City Chemicals PROJECT # 193004

PIT OR BORING # P - 3

PAGE 3 OF 3

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV	MATERIAL / DRILLING AND OTHER NOTES
30	—	—	—	—	—		—
					22		SAND, very coarse, some granules and pebbles,
	16	SS	30' - 32'	1.9'	35		little fine to medium sand, trace silt,
					24		saturated, 2.5 Y 7/4, PID = 0.45
32	—	—	—	—	27		—
					13		GRANULES, some pebbles, little very coarse
	17	SS	32' - 34'	1.8'	12		to medium sand, trace silt, saturated
					15		2.5 Y 6/6, PID = 0.3
34	—	—	—	—	15		—
					15		16" SAME AS ABOVE
	18	SS	34' - 36'	1.8'	14		PID = 0.20
					16		SHARP CONTACT
36	—	—	—	—	19		5" SAND, medium, trace silt
					13		SAND, medium to coarse, little fine sand, trace
	19	SS	36' - 38'	1.6'	15		silt, one pebble zone 2" thick, saturated,
					15		2.5 Y 6/6, PID = 0.27
38	—	—	—	—	17		—
					17		SAME AS ABOVE, SIMILAR PEBBLE ZONE
	20	SS	38' - 40'	1.7'	20		PID = 0.17
					22		—
40	—	—	—	—	42		—
					30		0.6' SAME AS ABOVE
	21	SS	40' - 42'	1.8'	32		0.9' PEBBLES, some interstitial silt
					34		saturated, PID = 0.22
42	—	—	—	—	55		0.3' SAND, coarse, and PEBBLES, trace silt
					18		GRANULES, some pebbles, little coarse to medium
	22	SS	42' - 44'	2.0'	18		sand, trace silt, 5 Y 7/3, one zone oxidized
					21		to 7.5 YR 6/8, saturated
44	—	—	—	—	19		—
					14		GRANULES and PEBBLES, little medium to coarse
	23	SS	44' - 46'	1.5'	12		sand, trace silt, saturated, PID = 0.6
					15		—
46	—	—	—	—	30		—
					23		SAME AS ABOVE
	24	SS	46' - 48'	1.4'	20		one siltier zone, 3" thick
					20		—
48	—	—	—	—	28		—
					16		SAME AS ABOVE
	25	SS	48' - 50'	1.4'	24		—
					37		—
50	—	—	—	—	30		END OF BORING AT 50'

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SUBSURFACE EXPLORATION LOG

PIT OR BORING # P-4, P-4A

PAGE 1 OF 5

PROJECT Gem City Chemicals, Inc. PROJECT # 193004

GENERAL SITE LOCATION 1287 Air City Avenue

STATE Ohio COUNTY Montgomery CITY/TWP Dayton SEC

LOCATION ON THE SITE 35 feet southeast of recovery well, behind office building

METHOD(S) 6 1/4" HSA RIG CME-75 HOLE DIA. 12" SAMPLER & SIZE 2"x24" Split Spoon

DRILLING CO. Moody's of Dayton DRILLERS P. Ridder, J. D. Hobbs LOGGED BY J. Michael Clinch

DATE STARTED 1/19/93 DATE FINISHED 1/27/93

x BORING COMPLETED AS A piezometer, P-4 OR _ BACKFILLED DATE / / MATERIAL

DEPTH TO WATER: Encountered at 22 ', At completion N.A. ', On 2/8/93 water was at 22.39' (TOC)

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV.	MATERIAL / DRILLING AND OTHER NOTES
							surface: 1 1/2" gravel fill
0							----------
					19		3" GRAVEL FILL
1	1	SS	0'-2'	1.7'	4		11" COAL DUST and SILT
					7		6" BRICK FRAGMENTS
2					10		PID = 0.15
					5		SILT, little angular pebbles, little fine
3	2	SS	2'-4'	0.9'	5		sand, moist, 10 YR 4/4, PID = 0.20
					7		
4					10		
					10		SAND, medium to coarse, and PEBBLES (to 1 1/2")
5	3	SS	4'-6'	1.3'	14		some granules, trace silt, moist, 10 YR 6/6
					16		PID = 0
6					21		
					20		SAND, coarse, and PEBBLES, some granules, little
7	4	SS	6'-8'	1.4'	21		fine to medium sand, trace silt, 10 YR 7/6
					25		moist to dry, PID = 0.5
8					29		(Cobbles to 4.5" in flight return)
					13		SAND, coarse, PEBBLES and broken pebble
9	5	SS	8'-10'	1.2'	90		fragments (to 3"), some granules, little silt
					26		as pebble coatings, little fine to medium sand
10					27		moist, PID = 0

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PROJECT Gem City Chemicals, Inc. PROJECT # 193004

PIT OR BORING # P-4, P-4A

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DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV	MATERIAL DRILLING AND OTHER NOTES
10							
	6	SS	10'-12'	1.4'	25 34 52		PEBBLES, PEBBLE FRAGMENTS(to 2") and SAND, medium, some granules, little fine sand, trace silt, dry, 2.5 Y 6/4, PID = 0.07
12	—	—	———	——	40		
	7	SS	12'-14'	1.4'	22 22 16		PEBBLES and GRANULES, some medium to fine sand, trace silt in interstices, moist, 2.5 Y 6/4 PID = 0
14	—	—	———	——	16		
	8	SS	14'-16'	1.3'	11 9 16		GRANULES, some pebbles, little sand, trace silt, wet, PID = 0
16	—	—	———	——	27		
	9	SS	16'-18'	1.4'	30 25 30		PEBBLES and GRANULES, some medium to fine sand and silt (interstitial), 2.5 Y 6/3 PID = 0
18	—	—	———	——	30		
	10	SS	18'-20'	1.4'	23 22 26		0.5' same as above 0.25' SAND, very fine, little silt, oxidized 0.7' SAND, medium, well-sorted, moist PID = 0.3
20	—	—	———	——	30		
	11	SS	20'-22'	1.4'	13 14 20		SAND, medium, faint planar bedding, moist, saturated in tip, 2.5 Y 6/6, PID = 0.5
22	—	—	———	——	26		
	12	SS	22'-24'	1.9'	16 21 30		0.9' SAME AS ABOVE, fining upward, saturated 1.0' SAND, coarse to very coarse, little f.-m. sand, few pebbles, trace silt, PID = 0.27
24	—	—	———	——	30		
	13	SS	24'-26'	1.7'	23 23 29		SAND, very coarse, some granules, little pebbles, few fine to medium sand, trace silt saturated, PID = 0.5
26	—	—	———	——	29		-- coarsening downward to --
	14	SS	26'-28'	1.7'	27 40 30		0.7' GRANULES, some very coarse sand, few pebbles, little silt, PID = 0.35 1.0 SAND, medium to coarse, few pebbles, trace silt, saturated
28	—	—	———	——	30		
	15	SS	28'-30'	1.9'	25 25 21 22		SAND, medium, few granules, few pebbles, trace silt, with one 5" bed of PEBBLES, little interstitial silt, 2.5 Y 5/4, saturated PID = 0.30
30							

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PROJECT Gem City Chemicals PROJECT # 193004

PIT OR BORING # P-4, P-4A

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DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV	MATERIAL / DRILLING AND OTHER NOTES
30	—	—	———	—	———		
					11		SAND, medium, trace fine to coarse sand, trace
	16	SS	30'-32'	1.5'	25		silt, one bed of coarse sand and pebbles,
					21		saturated, 2.5 Y 5/3, PID = 0.38
32	—	—	———	—	20		
					18		SAND, medium, little coarse sand and granules,
	17	SS	32'-34'	1.6'	25		few pebbles, trace silt, two thin pebble
					33		zones (with interstitial silt), PID =0.50
34	—	—	———	—	36		
					22		SAND, very coarse, some granules, little
	18	SS	34'-36'	1.8'	28		pebbles, few fine to coarse sand, trace silt
					29		PID = 0.50
36	—	—	———	—	33		
					10		SAME AS ABOVE, minor pebble-rich beds
	19	SS	36'-38'	1.9'	20		PIID = 0.3
					25		
38	—	—	———	—	40		
					25		SAND, coarse to medium, little granules,
	20	SS	38'-40'	1.9'	40		little pebbles, few fine sand, trace silt,
					30		coarsening to SAND and PEBBLES downward
40	—	—	———	—	35		PID = 0.75
					20		0.3' SAND and PEBBLES
	21	SS	40'-42'	1.8'	27		1.5' PEBBLES, little granules, little fine to
					27		coarse sand, few silt, 2.5 Y 6/4
42	—	—	———	—	25		PID = 0.55
					22		SAME AS ABOVE, PID = 0.7
	22	SS	42'-44'	1.6'	35		
					33		
44	—	—	———	—	35		
					15		GRANULES, some very coarse sand, little fine
	23	SS	44'-46'	1.6'	27		to medium sand, trace silt, minor siltier
					27		intervals, saturated, 2.5 Y 6/6, PID = 0.5
46	—	—	———	—	32		
					15		GRANULES and PEBBLES, little medium to coarse
	24	SS	46'-48'	1.3'	10		sand, few silt, PID = 0.8
					11		
48	—	—	———	—	20		
					28		GRANULES, some pebbles, some very coarse sand,
	25	SS	48'-50'	1.2'	21		little fine to medium sand, few silt
					20		PID = 0.25
50	—	—	———	—	23		

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PROJECT Gem City Chemicals PROJECT # 193004

PIT OR BORING # P-4, P-4A

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DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV	MATERIAL / DRILLING AND OTHER NOTES
50	—	—	———	—	———		—
					19		GRANULES and PEBBLES, some very coarse sand
	26	SS	50'-52'	1.3'	18		little fine to medium sand, trace silt,
					22		more interstitial silt in discrete zones,
52	—	—	———	—	23		saturated, 2.5 Y 6/6, PID = 0.35
					80		(COBBLE - NOT RECOVERED)
	27	SS	52'-54'	1.3'	40		PEBBLES, some medium sand, little granules,
					24		few silt, 2.5 Y 6/6, PID = 0.31
54	—	—	———	—	30		—
					30		SAND, medium to coarse, little granules,
	28	SS	54'-56'	1.9'	45		little pebbles, few silt, 2.5 Y 6/6
					37		oxidized zones (10 YR 6/8), saturated
56	—	—	———	—	40		PID = 0.2
					60		SAME AS ABOVE, with some broken pebble
	29	SS	56'-58'	1.4'	50		and cobble fragments, PID = 0.2
					60		—
58	—	—	———	—	50		—
					19		SAND, coarse, well-sorted, few 1" diameter
	30	SS	58'-60'	1.7'	24		pebbles at tip and in one thin zone, trace
					50		silt with pebbles, PID = 0.25
60	—	—	———	—	40		—
					22		SAND, coarse to very coarse, few granules,
	31	SS	60'-62'	1.6'	25		trace silt, trace fine pebbles in SS tip,
					40		2.5 Y 6/6, saturated, PID = 0.20
62	—	—	———	—	30		—
					16		PEBBLES, and broken fragments, little coarse
	32	SS	62'-64'	1.3'	40		to very coarse sand, little granules, few
					55		silt - coarsening downward -
64	—	—	———	—	50		PID = 0.2
					15		SAND, very coarse, little fine to medium sand,
	33	SS	64'-66'	1.4'	33		trace granules, trace silt
					33		—
66	—	—	———	—	33		—
					20		1.0' SAND, very coarse, and GRANULES, little
	34	SS	66'-68'	1.7'	19		fine to medium sand, trace silt
					36		0.7' GRANULES and PEBBLES, little sand, few
68	—	—	———	—	30		silt (minor blowin prior to sampling)
					27		SAND, very coarse, some pebbles, little
	35	SS	68'-70'	1.6'	50		granules, little fine to medium sand, trace
					50		silt, 2.5 Y 6/6, PID = 0.6
70	—	—	———	—	80		—

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SUBSURFACE EXPLORATION LOG

PROJECT Gem City Chemicals PROJECT # 193004

PIT OR BORING # P-4, P-4A

PAGE 5 OF 5

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV	MATERIAL / DRILLING AND OTHER NOTES
70	—	—	—	—	—		—
					75		1.0' SAND, very coarse, little granules, little pebbles, trace silt
	36	3" SS	70'-72'	1.6'	65		0.6' GRANULES and PEBBLES (to 2"), little sand few silt, PID = 1.0
					65		AUGERS LOCKED AT 72', DUE TO BLOWIN AND SAND
72	—	—	—	—	90		LOCKING AROUND FLIGHTS DURING SAMPLING -
							AUGERS REVERSED OUT OF HOLE TO 50 FEET, AND
							HOLE REDRILLED TO 78' - BLOWIN MATERIAL FROM
74							THIS INTERVAL SAMPLED BY SAND BAILER
							BLOWIN SAMPLE - SAND, very coarse, and PEBBLES
76							(to 1.5"), trace silt
78	—	—	—	—	—		spoon full - blowin of sand and gravel
	37	3"SS	78'-78.5'	0.5'	250/6"		SAND, very coarse, and PEBBLES (to 1.5"), some granules, little fine to medium sand, tr. silt
							END OF BORING P-4 - AUGERS SAND-LOCKED
80							HOLE ABANDONED, AND REDRILLED 5' SOUTH AS
							BORING P-4A - AUGER REFUSAL AT 81.25'
81	—	—	—	—	—		
	38	3"SS	81.3'-82'	0.7'	60		SILT, little fine to medium sand, trace
82	—	—	—	—	100/3"		granules, compact, sheared, moist,
							5 Y 4/3 (interpretation - LODGMENT TILL)
							END OF BORING P-4A AT 81.25'
84							
86							
88							
90							

NOTES: P-4 backfilled by natural collapse to a depth of 15', and by cuttings and cement to the ground surface

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SUBSURFACE EXPLORATION LOG

PIT OR BORING # P-5
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PROJECT Gem City Chemicals, Inc. PROJECT # 193004

GENERAL SITE LOCATION 1287 Air City Avenue

STATE Ohio COUNTY Montgomery CITY/TWP Dayton SEC ____

LOCATION ON THE SITE Front of office building, between entrance doors, in former planting area

METHOD(S) 6 1/4" HSA RIG CME-75 HOLE DIA. 12" SAMPLER & SIZE 2"x24" Split Spoon

DRILLING CO. Moody's of Dayton DRILLERS P. Ridder, J. D. Hobbs LOGGED BY J. Michael Clinch

DATE STARTED 1/23/93 DATE FINISHED 1/23/93

x BORING COMPLETED AS A piezometer, P-5 OR _ BACKFILLED DATE / / MATERIAL ____

DEPTH TO WATER: Encountered at 20 ', At completion N.A. ', On 2/8/93 water was at 18.71' (TOC)

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV.	MATERIAL / DRILLING AND OTHER NOTES
							surface: loose topsoil, plant roots
0							6"-12" loose topsoil
1							SAND, medium, some fine to coarse sand, and some pebbles (to 3"x2"x2"), trace silt, dry, 10 YR 7/4 (logged from auger flight return
2							
3							
4							
5	1	SS	4'-6'	1.3'	12 27 36 37		SAND, coarse to very coarse, some pebbles to 2" (broken fragments in spoon), little granules, few f.-m. sand, trace silt, dry 10 YR 7/3, silt 10 YR 5/6, PID = 0
6							
7							HEAVY RIG CHATTER, PEBBLES UP TO 4" IN FLIGHT RETURNS
8							
9							
10	2	SS	9'-11'	0.9'	42 30		PEBBLES, to 2", some fine to medium sand, trace silt, dry, 10 YR 7/4, PID = 0.05

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SUBSURFACE EXPLORATION LOG

PROJECT Gem City Chemicals, Inc. PROJECT # 193004

PIT OR BORING # P-5

PAGE 2 OF 3

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV	MATERIAL / DRILLING AND OTHER NOTES
10							
	2	SS	9'-11'	0.9'	25		PEBBLES (to 2"), some fine to medium sand,
	—	—	—	—	20		trace silt, dry, 10 YR 7/4, PID = 0.05
12							
14	—	—	—	—	—		
					20		PEBBLES, and pebble fragments, little fine
	3	SS	14'-16'	0.8'	18		to medium sand, trace silt, dry,
					9		10 YR 7/4, PID = 0
16	—	—	—	—	19		
					16		SAND, coarse to very coarse, some pebbles
	4	SS	16'-18'	1.0'	16		(to 1") little fine to medium sand, trace
					13		silt, dry to moist, 10 YR 7/4, minor
18	—	—	—	—	18		oxidation spots, PID = 0
					15		SAND, medium to coarse, trace silt, trace
	5	SS	18'-20'	1.4'	13		pebbles, faint planar bedding, wet to
					16		saturated, PID = 0.4
20	—	—	—	—	20		
					11		SAND, medium to coarse, trace silt, faint
	6	SS	20'-22'	1.7'	19		planar bedding, 2.5 Y 6/4, saturated,
					17		PID = 0.5
22	—	—	—	—	26		
24	—	—	—	—	—		
					35		0.4' SAME AS ABOVE
	7	SS	24'-26'	1.6'	43		sharp contact
					37		1.2' PEBBLES and pebble fragments, little
26	—	—	—	—	26		f.-m. sand, few silt, PID = 0.25
28							
	—	—	—	—	—		
					20		SAND, coarse, little granules, few pebbles
30	8	SS	29'-31'	1.3'	18		(to 1/2") trace silt, 10 YR 6/3, PID = 0.5

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PROJECT Gem City Chemicals PROJECT # 193004

PIT OR BORING # P-5

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DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV	MATERIAL / DRILLING AND OTHER NOTES
30	8	SS	29'-31'	1.3'	16, 25		SAND, coarse, little granules, few pebbles (to 1/2"), trace silt, 10 YR 6/3, PID = 0.5
32							
34	9	SS	34'-36'	1.8'	15, 19, 22, 24		PEBBLES and GRANULES, little coarse sand fining downward to SAND, coarse to very coarse, little granules few medium sand, trace silt, PID = 0.4
36							
38							
40	10	SS	39'-41'	1.3'	33, 20, 13, 14		PEBBLES and GRANULES, few fine to medium sand, trace silt, saturated, PID = 0.5
42							
44	11	SS	44'-46'	1.7'	28, 16, 20, 23		SAND, coarse to very coarse, some pebbles, little granules, few fine to medium sand few silt, saturated, 10 YR 6/3, PID = 2.8
46							
48	12	SS	48'-50'	1.5'	42, 40, 41, 45		PEBBLES and fragments (to 1.5"), some medium to coarse sand, little granules, few silt saturated, PID = 0.6
50							END OF BORING AT 50'

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SUBSURFACE EXPLORATION LOG

PIT OR BORING # P-6
PAGE 1 OF 3

PROJECT Gem City Chemicals, Inc. PROJECT # 193004
GENERAL SITE LOCATION 1287 Air City Avenue
STATE Ohio COUNTY Montgomery CITY/TWP Dayton SEC
LOCATION ON THE SITE North of office building, adjacent to dike surrounding acid tanks
METHOD(S) 6 1/4" HSA RIG CME-75 HOLE DIA. 12" SAMPLER & SIZE 2"x24" Split Spoon
DRILLING CO. Moody's of Dayton DRILLERS P. Ridder, J. D. Hobbs LOGGED BY Clinch, Vanderhorst
DATE STARTED 1/25/93 DATE FINISHED 1/26/93
x BORING COMPLETED AS A piezometer, P-6 OR _ BACKFILLED DATE / / MATERIAL
DEPTH TO WATER: Encountered at 20 ', At completion N.A. ', On 2/8/93 water was at 21.70' (TOC)

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV.	MATERIAL / DRILLING AND OTHER NOTES
							surface: gravel fill
0							
1	1	SS	0'-2'	0.7'	16 18 12 6		3" SILT and coal dust, little pebbles, 10 YR 3/2 grading downward into 6" SILT and little pebbles, trace fine to medium sand, 10 YR 4/2, moist, PID = 0
3	2	SS	2'-4'	0.8'	5 9 9 12		SAND, medium to coarse, some pebbles and broken pebble fragments, moist, 10 YR 5/3, PID = 0
5	3	SS	4'-6'	1.0'	13 15 17 20		SAND, medium to coarse, some pebbles and broken pebble fragments (to 2"), little fine to medium sand, little granules, few silt (pebble caps) 10 YR 6/4, PID = 0.2
7	4	SS	6'-8'	1.0'	27 45 45 45		SAME AS ABOVE, with oxidized spots, 2.5 YR 5/6 (HEAVY RIG CHATTER, CLASTS TO 6" IN FLIGHTS)
9	5	SS	8'-10'	1.3'	30 60 55 47		PEBBLES and pebble fragments, some coarse to very coarse sand, little granules, trace silt dry, 10 YR 7/4 with oxidized 10 YR 5/4 zones, PID = 0.55

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SUBSURFACE EXPLORATION LOG

PROJECT Gem City Chemicals, Inc. PROJECT # 193004

PIT OR BORING # P-6

PAGE 2 OF 3

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV	MATERIAL / DRILLING AND OTHER NOTES
10							
					42		PEBBLES and broken pebble fragments, some
	6	SS	10'-11.25'	0.4'	30		coarse to very coarse sand, little granules
					50/3"		PID = 0.27
12	—	—	———	—	—		(RIG CHATTER CONTINUES)
							SPLIT SPOON REFUSAL ON A COBBLE
	7	SS	12'	0	100/0"		(HEAVY RIG CHATTER - DRILL RIG
							LIFTED OFF OF JACKS AT TIMES)
14	—	—	———	—	—		
					20		SAND, medium to coarse, some pebbles, little
	8	SS	14'-16'	1.2'	22		granules, little fine sand, trace silt
					23		moist 10 YR 6/6, PID = 0.36
16	—	—	———	—	30		
					21		SAND, coarse to medium, faint planar bedding,
	9	SS	16'-18'	1.2'	27		fining upward over 6", interbedded with
					37		PEBBLES, with little sand and trace silt in
18	—	—	———	—	40		3" thick beds, moist, PID = 0.8
					22		SAME AS ABOVE, wet at tip of split spoon,
	10	SS	18'-20'	1.6'	20		PID = 0.75
					18		
20	—	—	———	—	18		
					7		SAND, medium to coarse, little very coarse
	11	SS	20'-22'	1.5'	11		sand, few granules, trace small pebbles,
					14		trace silt, 10 YR 6/4, saturated,
22	—	—	———	—	17		PID = 0.5
					13		SAND, in coarsening upward cycles over 1 foot
	12	SS	22'-24'	2.0'	24		from medium sand through thin pebble zones
					28		(with interstitial fine sand and silt)
24	—	—	———	—	25		PID = 0.4
					30		0.8' SAND, coarse to very coarse
	13	SS	24'-26'	1.9'	65		sharp, oxidized contact
					35		1.1' PEBBLES and broken pebble fragments,
26	—	—	———	—	30		little sand, few silt, PID = 0.4
					11		GRANULES and PEBBLES, some very coarse sand,
	14	SS	26'-28'	1.2'	10		little fine to medium sand, few silt,
					12		saturated 10 YR 6/4, PID = 0.5
28	—	—	———	—	25		-- fining downward into --
					20		SAND, very coarse, little granules, trace silt
	15	SS	28'-30'	1.6'	23		-- fining downward into --
					20		SAND, medium to coarse, trace silt
30					22		PID = 0.3

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PROJECT Gem City Chemicals PROJECT # 193004

PIT OR BORING # P-6

PAGE 3 OF 3

DEPTH	SAMPLE INFORMATION #	TYPE	FROM / TO	REC	BLOW CT ADV RATE	ELEV	MATERIAL	DRILLING AND OTHER NOTES
30								
					8		SAND, coarse, little very coarse sand and	
	16	SS	30'-32'	1.4'	10		granules, little fine to medium sand,	
					18		trace silt, 2.5 Y 6/3, PID = 0.30	
32	—	—	———	—	24		-- fining downward to --	
					8		SAND, medium, little coarse to very coarse	
	17	SS	32'-34'	0.9'	16		sand, trace silt, PID = 0.56	
					30			
34	—	—	———	—	43		small pebbles in tip	
					25		SAND, coarse to very coarse, few granules,	
	18	SS	34'-36'	1.7'	25		few fine to medium sand, trace pebbles,	
					22		trace silt, 2.5 Y 6/3	
36	—	—	———	—	22			
					30		SAND, very coarse, little pebbles in discrete	
	19	SS	36'-38'	1.5'	30		3" layers, little granules, few fine sand,	
					32		few silt, in in 1' thick, fining upward	
38	—	—	———	—	25		beds	
					22		SAND, very coarse, some pebbles and broken	
	20	SS	38'-40'	1.3'	18		fragments (to 2"), little granules, little	
					19		fine to medium sand, few silt	
40	—	—	———	—	18			
					16		SAND, very coarse, some pebbles and fragments	
	21	SS	40'-42'	1.2'	16		little granules, few silt, trace fine sand,	
					28		PID = 0.30	
42	—	—	———	—	26			
					14		PEBBLES, some very coarse sand, little granules	
	22	SS	42'-44'	1.2'	12		few silt, trace fine sand, PID = 0.30	
					23			
44	—	—	———	—	21			
					18		SAND, very coarse, some pebbles and fragments	
	23	SS	44'-46'	1.3'	18		(to 1 1/2"), little granules, few silt,	
					18		trace fine sand, PID = 0.25	
46	—	—	———	—	20			
					20		SAME AS ABOVE, PID = 0.11	
	24	SS	46'-48'	1.5'	24			
					28			
48	—	—	———	—	22			
					24		SAME AS ABOVE, PID = 0.33	
	25	SS	48'-50'	1.3'	24			
					16			
50	—	—	———	—	20			
							END OF BORING AT 50'	

NOTES:

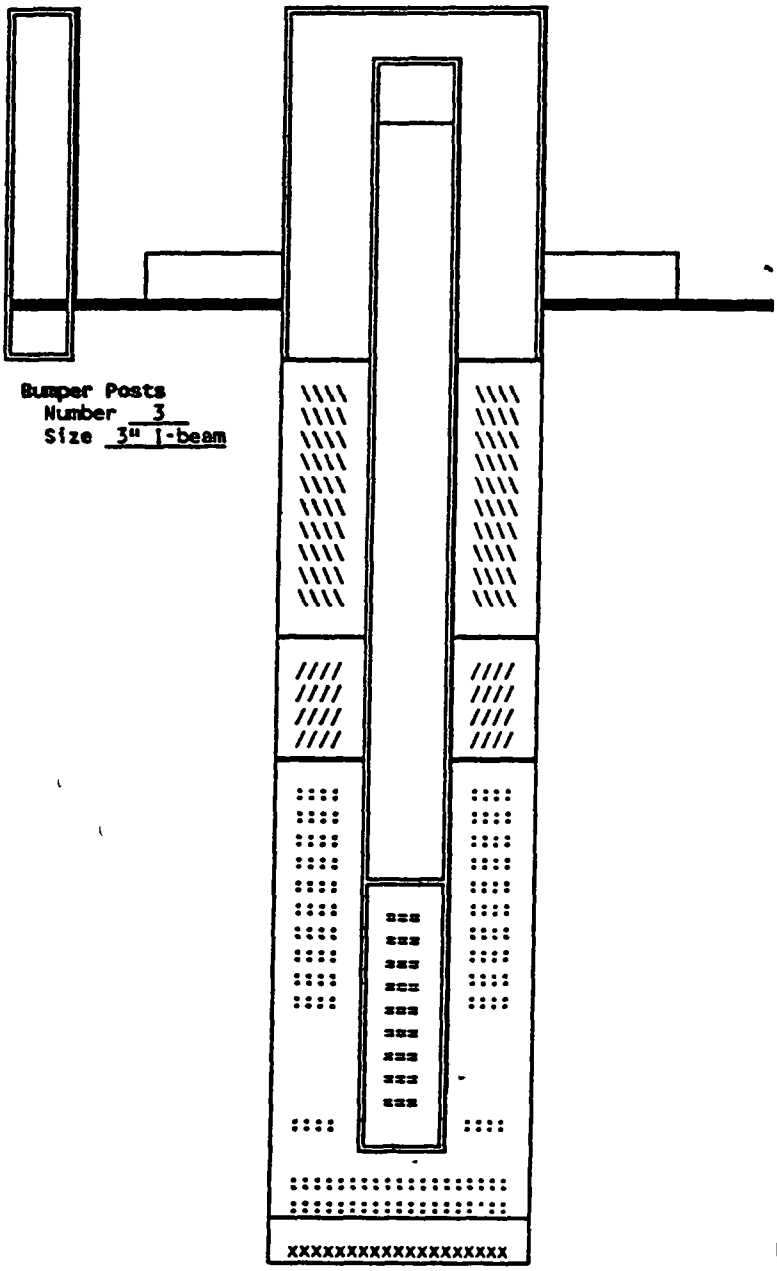
2490 Technical Drive Miamisburg, Ohio 45343 (513) 866-1711 · (800) 356-9039 · FAX (513) 866-7473

AS-BUILT RECORD DRAWING
QSOURCE ENVIRONMENTAL SERVICES, INC.

PROJECT # I93004 **BOREHOLE #** P-2 **PIEZOMETER #** 2

DATE INSTALLATION COMPLETED 1 / 18/ 93

LOCATION ON SITE northern corner, northern $CaCl_2$ tank pad (in line with P-3 and P-1)



DEPTH	ELEV.	
2.55	754.78	Top of Security Riser
2.24	754.57	Top of well Casing
0.45	752.88	Top of Pad Size 3' X 3'
0.0	752.33	Ground Surface
5 2	747.1	Top of Grout

Grout in annular void:
made of cement with 3-5% bentonite
volume

Riser: Material PVC Sch. 40
Dia. 1 1/4" Length 50.18

44 0	708.3	Top of Pack Seal

Filter Pack Seal:
Made of 3/8" volclay pellets

45.6	706.7	Top of Filter Pack

Filter Pack: Made of Global #5 sand
Volume 50 lb. (0.5 ft³)

48.01	704.32	Top of Slots

Screen Section Made of Sch. 40 PVC
Dia. 1 1/4 in. Length 2 41 ft.
Slot Size 0.010 in.

23.18 (TOC)	731.39	Water Level on 2 / 8 / 93
50.19	702.14	Bottom of Slots
50.42	701.91	Bottom of Well
51.0	701.3	Bottom of Filter Pack

Material below Filter Pack none

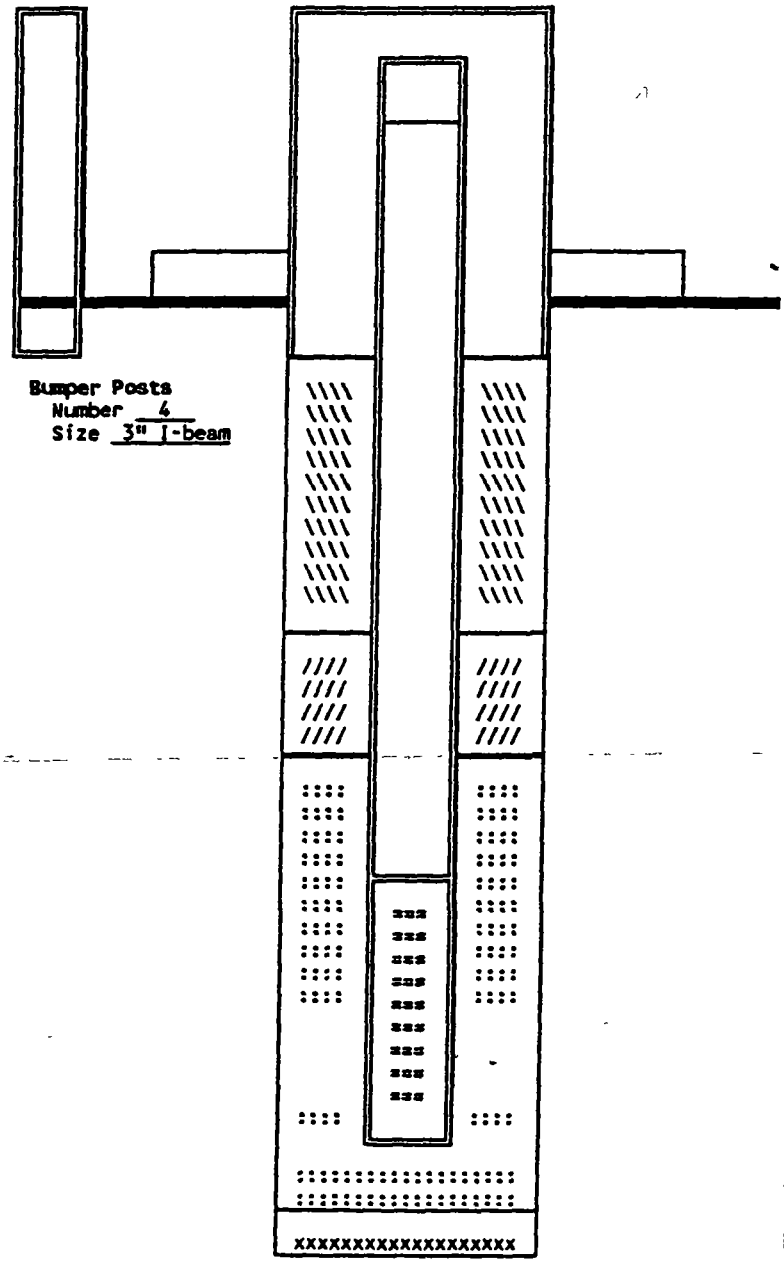
51.0	701 3	Bottom of Borehole
9	inches	Borehole Diameter

AS-BUILT RECORD DRAWING
QSOURCE ENVIRONMENTAL SERVICES, INC.

PROJECT # 193004 **BOREHOLE # P-3** **PIEZOMETER # 3**

DATE INSTALLATION COMPLETED 1/14/93

LOCATION ON SITE 197' E of west fence, 53' S of north fence, in line with P-1 and P-2



DEPTH	ELEV.	
2.23	754.47	Top of Security Riser
2.05	754.29	Top of well Casing
0.10	752.34	Top of Pad Size 3' X 3'
0.0	752.24	Ground Surface
3.9	748.3	Top of Grout

Grout in annular void:
made of cement with 3-5% bentonite
volume

Riser: Material PVC Sch. 40
Dia. 1 1/4" Length 48.73'

44.8'	707 4	Top of Pack Seal

Filter Pack Seal:
Made of 3/8" volclay pellets

46.4'	705 8	Top of Filter Pack

Filter Pack: Made of Global #5 sand
Volume 50 lb. (0.5 ft³)

46.63'	705.61	Top of Slots

Screen Section Made of Sch. 40 PVC
Dia. 1 1/4 in. Length 2.41 ft.
Slot Size 0 010 in.

22.92 (TOC)	731.37	Water Level on 2 / 8 / 93
48.79	703.45	Bottom of Slots
49.03	703.21	Bottom of Well
49.75	702.5	Bottom of Filter Pack

Material below Filter Pack none

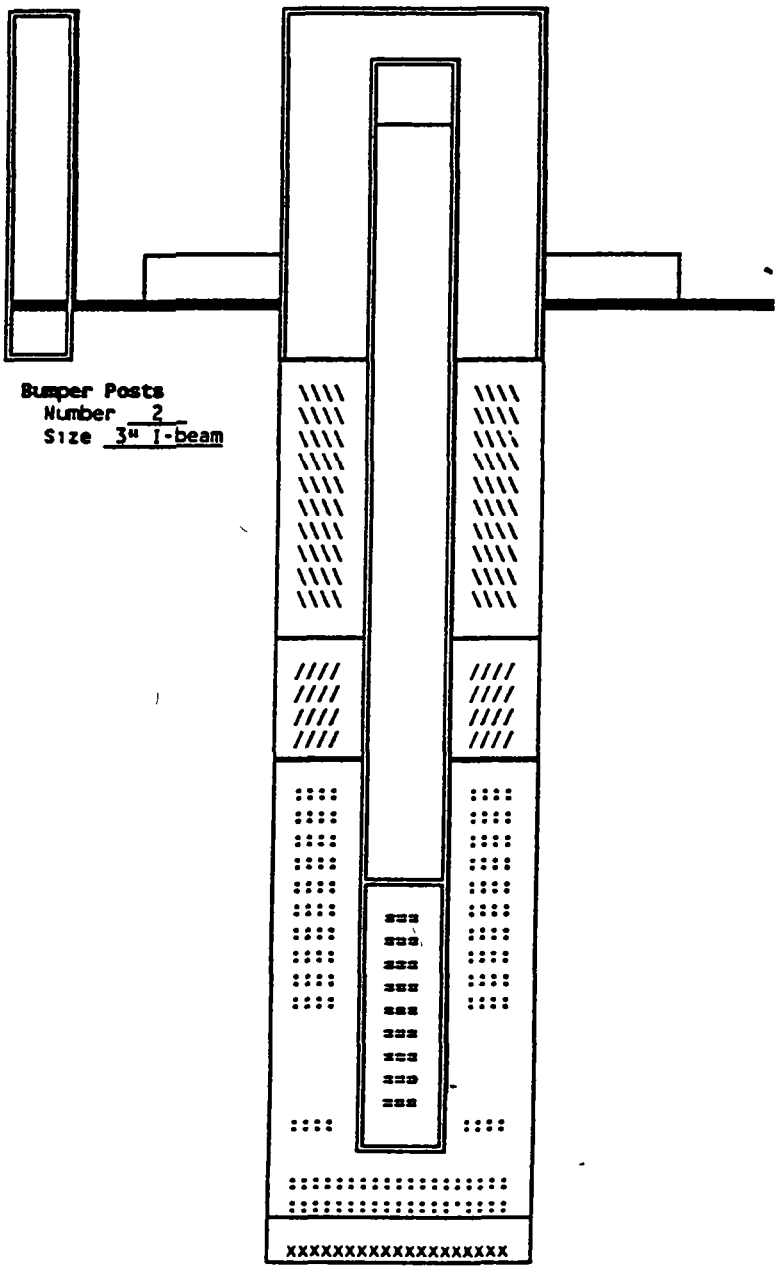
49.75	702.5	Bottom of Borehole
9	inches	Borehole Diameter

AS-BUILT RECORD DRAWING
QSOURCE ENVIRONMENTAL SERVICES, INC.

PROJECT # 193004 **BOREHOLE #** P-4A **PIEZOMETER #** 4

DATE INSTALLATION COMPLETED 1 / 27 / 93

LOCATION ON SITE 35 feet SE of recovery well, behind office building



Bumper Posts
Number 2
Size 3" I-beam

DEPTH	ELEV.	
2.15	753.70	Top of Security Riser
2.01	753.56	Top of Well Casing
0.10	751.65	Top of Pad Size 3' X 3'
0.0	751.55	Ground Surface
2.5	749.1	Top of Grout

Grout in annular void:
made of cement with 3-5% bentonite
volume 20 gallons

Riser: Material PVC Sch. 40
Dia. 1 1/4" Length 48.73'

20.0'	731.6	Top of Pack Seal

Filter Pack Seal:
Made of volclay donuts, 6" ea.

75.0'	676.6	Top of Filter Pack

Filter Pack: Made of Global #5 sand
Volume 200 lb. (2.0 ft³)

76.13'	675.42	Top of Slots

Screen Section Made of Sch. 40 PVC
Dia. 2.0 in. Length 5.10 ft.
Slot Size 0.010 in.

22.39 (TOC)	731.17	Water Level on 2 / 8 / 93
80.99	670.56	Bottom of Slots
81.25	670.30	Bottom of Well
81.25	670.30	Bottom of Filter Pack

Material below Filter Pack none

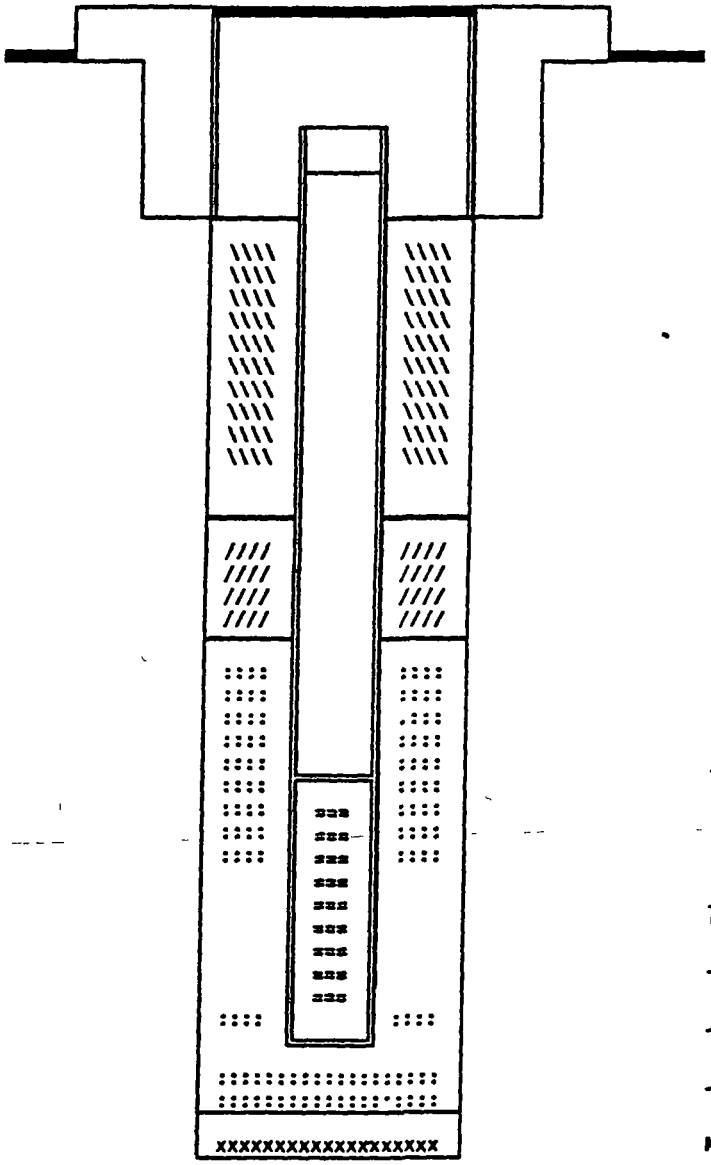
81.25	670.30	Bottom of Borehole
12	inches	Borehole Diameter

AS-BUILT RECORD DRAWING
QSOURCE ENVIRONMENTAL SERVICES, INC.

PROJECT # I93004 **BOREHOLE #** P-5 **PIEZOMETER #** 5

DATE INSTALLATION COMPLETED 1 / 23 / 93

LOCATION ON SITE in front of office building, between entrance doors, in planter area



DEPTH	ELEV.	
0.0'	750.13	Top of Pad Size 3' x 3'
0.0'	750.13	Ground Surface
0.20	749 93	Top of well Casing

Security Cover: 10 " Dia. 6 " Depth

2.2	747.9	Top of Grout

Grout in annular void:
made of cement with 3-5% bentonite
volume 35 gallons

Riser: Material PVC Sch. 40
Dia. 1 1/4 Length 48.46

44.9	705.2	Top of Pack Seal

Filter Pack Seal:
Made of 4 volclay donuts, 6" ea.

46.9	703.2	Top of Filter Pack

Filter Pack Made of Global # 5 sand
Volume 3/4 ft^3

47.61	702.52	Top of Slots

Screen Section Made of Sch. 40 PVC
Dia. 1 1/4 in. Length 2.42 ft.
Slot Size 0.010 in.

18.71 (TOC)	731.14	Water Level on 2 / 8 / 93
49.79	700.34	Bottom of Slots
50.04	700.09	Bottom of Well
50.04	700.09	Bottom of Filter Pack

Material below Filter Pack none

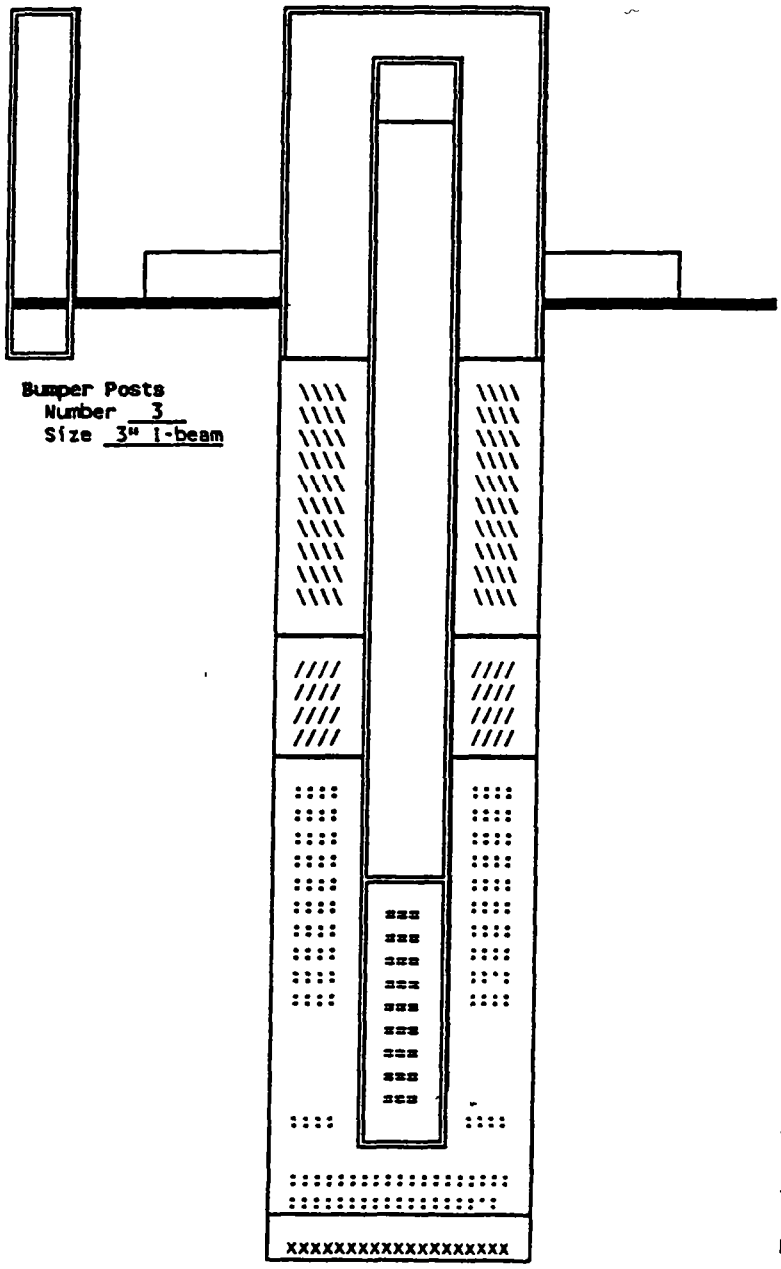
50.04	700.09	Bottom of Borehole
12	inches	Borehole diameter

AS-BUILT RECORD DRAWING
QSOURCE ENVIRONMENTAL SERVICES, INC.

PROJECT # I93004 **BOREHOLE #** P-6 **PIEZOMETER #** 6

DATE INSTALLATION COMPLETED 1 / 26 / 93

LOCATION ON SITE north side of diked area surrounding acid tanks, north side of office building



DEPTH	ELEV.	
2.58	753.05	Top of Security Riser
2.44	752.91	Top of well Casing
0.34	750 81	Top of Pad Size 5' x 5'
0.0	750.47	Ground Surface
3.5	747.0	Top of Grout

Grout in annular void:
made of cement with 3-5% bentonite
volume 35 gallons

Riser: Material PVC Sch. 40
Dia. 1 1/4" Length 48.73'

44.0	706.5	Top of Pack Seal

Filter Pack Seal:
Made of 4 volclay donuts, 6" ea.

46 0	704.5	Top of Filter Pack

Filter Pack: Made of Global #5 sand
Volume 100 lb. (1.0 ft³)

47.41	703.06	Top of Slots

Screen Section Made of Sch. 40 PVC
Dia. 1 1/4 in. Length 2.41 ft.
Slot Size 0.010 in.

21.70 (TOC)	731.21	Water Level on 2 / 8 / 93
49.59	700.88	Bottom of Slots
49.84	700 63	Bottom of Well
50.1	700.4	Bottom of Filter Pack

Material below Filter Pack none

50.1	700 4	Bottom of Borehole
12	inches	Borehole Diameter

QSOURCE ENVIRONMENTAL SERVICES, INC.

SUBSURFACE EXPLORATION LOG

PIT OR BORING # Pit - 1

PAGE 1 OF 1

PROJECT Gem City Chemicals, Inc. PROJECT # 193004

GENERAL SITE LOCATION 1287 Air City Avenue

STATE Ohio COUNTY Montgomery CITY/TWP Dayton SEC _____

LOCATION ON THE SITE Intersection of Melberth and Air City Drive, adjacent to sewer manhole

METHOD(S) backhoe RIG N. A.

Excavators City of Dayton, Dept.of Water LOGGED BY J. Michael Clinch

DATE STARTED 1/19/93 DATE FINISHED 1/20/93

X BACKFILLED DATE 1/20/93 MATERIAL excavated material

DEPTH TO WATER: Encountered at N. E. ', At completion N. A. ', After N. A. Hrs. water was at N. A.'

DEPTH	MATERIAL	DRILLING AND OTHER NOTES
	surface: Asphalt paving material	
0	----------	
1	Coarse gravel subgrade	
2	The excavation was completed long the right-of-way for the sanitary sewer, and most of	
3	the material exposed consisted of disturbed, natural material, used as backfill	
4		
5	In portions of the pit where undisturbed materials were present, the entire exposure	
6	consisted of crudely planar bedded sand and gravel outwash. The individual beds were	
7	approximately 6" to 9" thick.	
8		
9	The beds consisted of a layer of coarse pebbles and cobbles (maximum cobble size 4"x4"x6")	
10	containing interstitial fine-to-medium sand and silt. The finer-grained deposits appeared	
11	to be an interstitial fill, deposited within the pre-existing cobble layer.	
12		
13	The coarse clast layers are separated by planar-bedded coarse sands and granules, with	
14	trace silt.	
15		
16	There was no evidence of erosion or truncation of the individual beds.	

2490 Technical Drive · Miamisburg, Ohio 45343 · (513) 866-1711 · (800) 356-9039 · FAX (513) 866-7473

Gem City Chemicals, Inc.
Potentiometric Surface Data

WELL	DATE	TIME	TOC ELEVATION	DEPTH TO WATER	POTENTIOMETRIC SURFACE ELEVATION
MW-1	02/08/93	09 35	754 87	23.32	731 55
MW-2	02/08/93	09·48	753 69	22 41	731 28
MW-3	02/08/93	09 23	755 88	24 50	731 38
MW-4	02/08/93	09 43	754 95	23.55	731 40
MW-5S	02/08/93	09 53	751 20	19 93	731 27
MW-5M	02/08/93	09 55	751 53	20 18	731 35
MW-5D	02/08/93	09.57	751 16	19 85	731 31
MW-6S	02/08/93	09 27	754 97	23.53	731 44
MW-6M	02/08/93	09 29	755 55	23 91	731 64
MW-6D	02/08/93	09.31	755.77	24 15	731 62
P-1	02/08/93	10 00	754 51	23 89	730 62
P-2	02/08/93	09·41	754.57	23 18	731 39
P-3	02/08/93	09 38	754 29	22 92	731 37
P-4	02/08/93	10 03	753.56	22 39	731 17
P-5	02/08/93	10 09	749 93	18 71	731 22
P-6	02/08/93	10.17	752 91	21.70	731 21
RW-1			753 47	N D	

QSOURCE ENVIRONMENTAL SERVICES, INC.

Qsource Project No. I93004
Gem City Chemicals, Inc.
Potentiometric Surface Data

WELL	DATE	TIME	TOC ELEVATION	DEPTH TO WATER	POTENTIOMETRIC SURFACE ELEVATION
MW-1	2/23/93	12 57	754 87	23 58	731 29
MW-2	2/23/93	12 46	753 69	22 61	731 08
MW-3	2/23/93	13 07	755 88	24 81	731 07
MW-4	2/23/93	12 49	754 95	23 85	731 10
MW-5S	2/23/93	12.36	751 20	20 13	731 07
MW-5M	2/23/93	12 35	751 53	20 42	731 11
MW-5D	2/23/93	12.34	751 16	20 05	731 11
MW-6S	2/23/93	13 06	754 97	23 80	731 17
MW-6M	2/23/93	13 04	755 55	24 19	731.36
MW-6D	2/23/93	13 02	755 77	24 43	731 34
P-1	2/23/93	13 14	754 51	24 01	730 50
P-2	2/23/93	12.51	754.57	23 42	731 15
P-3	2/23/93	12 33	754 29	23 15	731 14
P-4	2/23/93	13 12	753.56	22 63	730 93
P-5	2/23/93	13 26	749 93	18 93	731 00
P-6	2/23/93	12 44	752.91	21 90	731 01
RW-1			753 47	n d.	n.d.

ALL MEASUREMENTS MADE RELATIVE TO TOP OF INNER CASING,
AT THE POSITION MARKED ON THE NORTH SIDE OF THE CASING

WEATHER _____

MEASUREMENTS BY _____

OTHER OBSERVATIONS _____

LEGGETTE, BRASHEARS & GRAHAM, INC.

PROFESSIONAL GROUND-WATER
AND ENVIRONMENTAL ENGINEERING SERVICES

1210 WEST COUNTY ROAD E
SAINT PAUL, MN 55112

(612) 490-1405 FAX (612) 490-1006

DATE. 10/26/99 **PAGES:** 3
(Includes cover page)

TO: Gary Stanczak **FAX #:** (248) 576-7369

COMPANY: DaimlerChrysler

TO: **FAX #:**

COMPANY:

TO: **FAX #:**

COMPANY:

FROM: Ken Vogel

RE: Dayton Soil Pile Loading, Hauling, Disposal Rough Cost Ranges

Please contact Kathleen Weinrich (612) 490-1405 if transmission is incomplete or can not be read.

fax TRANSMITTAL

DAIMLERCHRYSLER
DAYTON THERMAL PRODUCTS

THE DIRT ON THE DIRT

STONEY HOLLOW LANDFILL 25,000 CUBIC YARDS ~ 33,750 TONS
CONTACT SPENCER SOUTH

DISPOSAL COSTS

CONSTRUCTION DEBRIS $12 50 / TON X 33,750 TONS = $421,875

SOLID WASTE $25.00 / TON X 33,750 TONS = $843,750

R.B. JERGENS CONSTRUCTION

LOADING AND HAULING $6 50 / YARD X 25,000 YARDS = $195,000

RAIL TRANSPORT
DAYTON TO DETROIT $12 89 / TON X 33,750 TONS = $435,038

+ LOADING AND UNLOADING + TRUCKING TO SITE

LOADING (ROUGH) ESTIMATE 50 CU/YD/HOUR

$$\frac{25{,}000 \text{ CU/YD}}{50 \text{ CU/YD/HOUR}} = 500 \text{ HRS X } \$125/\text{HR} = \$62{,}500$$

UNLOAD / TRUCKING $195,000 ?????

CSX TRANSPORTATION

Thursday, October 21 1999

LAGGETT BRASHEARS GRAHAM
ATTN DANE OLSON

CSXT SALES REPRESENTATIVE Mike Francke
PHONE 800-871-8430

SUBJECT REQUESTED RATE WITH PROVISIONS AND GUIDELINES
Please call me at your earliest convenience, if you choose to ship under this circular

PUBLIC CIRCULAR # CSXT 3304

COMMODITY SAND GRAVEL,CLAY MIX
STCC 14411
RAIL ORIGIN DAYTON OH
RAIL DESTINATION DETROIT MI
ROUTE CSXT
(Routing must appear as shown above on your Bill of Lading)
EQUIPMENT Open_Top_Hopper 100T
OWNERSHIP SYSTEM
MILAGE N/A

RATE OFFER
1 **Rate** $12 89 Ton
Minimum Weight 180000 Lbs

Rate is for the rail portion only This is just an estimate The rate will vary depending upon actual equipment and routing

PAYMENT TERMS

All shipments are subject to prior approval of credit with CSX Transportation To receive a credit application please contact your sales representative

Credit Policy CSX Transportation s credit terms are 15 days for all traffic once credit is approved This 15 days begins with the date of the freight bill Corporate trade payment or wire transfer arrangements can be made

Payments by Mail In lieu of prior credit, and if no wire transfer or corporate trade arrangements have been made CSXT will accept a cashier s check with notation of car initials and numbers on the check The check should be mailed overnight to

CSX Transportation Revenue Management Dept.
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CSX Building II (4th Floor)
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CompuChem
a Division of Liberty Analytical
501 Madison Ave.
Cary, NC 27513

FAX COVER SHEET

Date: 4/28/98

To: Ken Vogel Fax: 612-490-1006

From: Diane Ellmore Phone: 919-379-4011
Fax: 919-379-4040

RE: _____

Number of pages including the cover sheet 12

Message:

Sent By: KEMRON OH VALLEY LAB, 1 014 373 4835, 24 Apr 98 3.14PM,Job 32, Page 1/11

KEMRON
ENVIRONMENTAL SERVICES

109 Starlite Park, Marietta, Ohio 45750
Phone: (740) 373-4071 Fax: (740) 373-4835

PROTECTING OUR ENVIRONMENTAL FUTURE

Company Name:	
Telecopied To:	Cathy Dove
Receiver's Fax Number:	919-379-4050

Sender:	Judy L. Wingo
Description	98-04-371

Number of Pages. (Including Transmittal Sheet)	11
Date Sent:	4/24

If there are any problems with this transmission, please contact sender at the above number

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750
Phone: (614) 373-4071

CompuChem
501 Madison Avenue
Cary, NC 27513

Attention: Cathy Dover

PO Number
Account Number: COMPUCHEM-529

Login #: L9804371
Report Date: 04/24/98
Work ID: 3C001/DAYTON THERMAL PRODUCTS
Date Received: 04/22/98

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
L9804371-01	EAST PIT/0'-8'/COMP	L9804371-02	WEST PIT/0-4'/COMP
L9804371-03	78042198	L9804371-04	H3042198180C

209-T

All results on soils/sludges are reported on a dry weight basis, where applicable, unless otherwise specified. This report shall not be reproduced, except in full, without the written approval of KEMRON.

NYSDOH ELAP ID. 10861

Certified By
David L. Bumgarner

KEMRON
ENVIRONMENTAL SERVICES

Login #L9804371
April 24, 1998 02:01 pm

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L9804371-01
Client Sample ID: EAST PIT/0'-6'/COMP
Site/Work ID: SC001/DAYTON THERMAL PRODUCTS

Matrix: Soil
Collected: 04/21/98 1630

% Solid: 93
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Percent Solids	% wt	93		1.0	1	N/A	KZL	04/22/98	14:20	D2216-93

Product: 8260 - Volatile Organics

Lab Sample ID: L9804371-01
Client Sample ID: EAST PIT/0'-6'/COMP
Site/Work ID: SC001/DAYTON THERMAL PRODUCTS
Matrix: Soil

Dil. Type: N/A
COC Info: N/A
Date Collected: 04/21/98

Sample Weight: N/A
Extract Volume: N/A
% Solid: 93

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 04/23/98 Time 15 16

Instrument: HPMS6
Analyst: SLT
Lab File ID: 6CU07285

Method: 8260A
Run ID: R45316

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
67-64-1	Acetone	ug/kg	5.1	J	110	1
71-43-2	Benzene	ug/kg		ND	5.4	1
108-86-1	Bromobenzene	ug/kg		ND	5.4	1
74-97-5	Bromochloromethane	ug/kg		ND	5.4	1
75-27-4	Bromodichloromethane	ug/kg		ND	5.4	1
75-25-2	Bromoform	ug/kg		ND	5.4	1
74-83-9	Bromomethane	ug/kg		ND	11	1
78-93-3	2-Butanone	ug/kg		ND	110	1
104-51-8	n-Butylbenzene	ug/kg		ND	5.4	1
135-98-8	sec-Butylbenzene	ug/kg		ND	5.4	1
98-06-6	tert-Butylbenzene	ug/kg		ND	5.4	1
75-15-0	Carbon disulfide	ug/kg	0.46	J	5.4	1
56-23-5	Carbon tetrachloride	ug/kg		ND	5.4	1
108-90-7	Chlorobenzene	ug/kg		ND	5.4	1
124-48-1	Chlorodibromomethane	ug/kg		ND	5.4	1
75-00-3	Chloroethane	ug/kg		ND	11	1
110-75-8	2-Chloroethyl vinyl ether	ug/kg		ND	11	1
67-66-3	Chloroform	ug/kg		ND	5.4	1
74-87-3	Chloromethane	ug/kg		ND	11	1
95-49-8	2-Chlorotoluene	ug/kg		ND	5.4	1
106-43-4	4-Chlorotoluene	ug/kg		ND	5.4	1
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg		ND	5.4	1
106-93-4	1,2-Dibromoethane	ug/kg		ND	5.4	1
74-95-3	Dibromomethane	ug/kg		ND	5.4	1

Login #L9804371
April 24, 1998 02 01 pm

KEMRON ENVIRONMENTAL SERVICES

Product: 8260 Volatile Organics

Lab Sample ID L9804371-01
Client Sample ID EAST PIT/0'-8'/COMP.
Site/Work ID SCG01/DAYTON THERMAL PRODUCTS
Matrix Soil

Dil. Type N/A
COC Info: N/A
Date Collected 04/21/98

Sample Weight. N/A
Extract Volume. N/A
% Solid. 93

TCLP Extract Date N/A
Extract Date N/A
Analysis Date 04/23/98 Time 15 18

Instrument HPMS6
Analyst. SLT
Lab File ID: 6CUC7286

Method. 8260A
Run ID: 345316

CAS #	Compound	Units		Result	Qualifiers	RL	Dilution
95-50-1	1,2-Dichlorobenzene	ug/kg	TCLP Level		ND	5.4	1
541-73-1	1,3-Dichlorobenzene	ug/kg			ND	5.4	1
106-46-7	1,4-Dichlorobenzene	ug/kg			ND	5 4	1
75-71-8	Dichlorodifluoromethane	ug/kg			ND	11	1
75-34-3	1,1-Dichloroethane	ug/kg			ND	5.4	1
107-06-2	1,2-Dichloroethane	ug/kg			ND	5 4	1
75-35-4	1,1-Dichloroethene	ug/kg			ND	5 4	1
156-59-2	cis-1,2-Dichloroethene	ug/kg		(0	J	5 4	1
156-60-5	trans-1,2-Dichloroethene	ug/kg		) 23	J	5 4	1
78-87-5	1,2-Dichloropropane	ug/kg			ND	5 4	1
142-28-9	1,3 Dichloropropane	ug/kg			ND	5 4	1
594-20-7	2,2-Dichloropropane	ug/kg			ND	5 4	1
10061-01-5	cis-1,3-Dichloropropene	ug/kg			ND	5 4	1
10061-02-6	trans-1,3-Dichloropropene	ug/kg			ND	5 4	1
563-58-6	1,1-Dichloropropene	ug/kg			ND	5 4	1
100-41-4	Ethylbenzene	ug/kg			ND	5 4	1
591-78-6	2-Hexanone	ug/kg			ND	11	1
87-68-3	Hexachlorobutadiene	ug/kg			ND	5.4	1
98-82-8	Isopropylbenzene	ug/kg			ND	5 4	1
99-87-6	p-Isopropyltoluene	ug/kg			ND	5.4	1
108-10-1	4-Methyl-2-pentanone	ug/kg			ND	11	1
75-09-2	Methylene chloride	ug/kg		1 2	J	5 4	1
91-20-3	Naphthalene	ug/kg			ND	11	1
103-65-1	n-Propylbenzene	ug/kg			ND	5 4	1
100-42-5	Styrene	ug/kg			ND	5.4	1
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg			ND	5.4	1
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg			ND	5 4	1
127-18-4	Tetrachloroethene	ug/kg			ND	5 4	1
108-88-3	Toluene	ug/kg		0.67	J	5 4	1
87-61-6	1,2,3-Trichlorobenzene	ug/kg			ND	5 4	1
120-82-1	1,2,4-Trichlorobenzene	ug/kg			ND	5 4	1
71-55-6	1,1,1-Trichloroethane	ug/kg			ND	5 4	1
79-00-5	1,1,2-Trichloroethane	ug/kg			ND	5 4	1
79-01-6	Trichloroethene	ug/kg	500	16		5 4	1
75-69-4	Trichlorofluoromethane	ug/kg			ND	11	1
96-18-4	1,2,3-Trichloropropane	ug/kg			ND	5.4	1
95-63-6	1,2,4-Trimethylbenzene	ug/kg			ND	5 4	1
108-67-8	1,3,5-Trimethylbenzene	ug/kg			ND	5 4	1
108-05-4	Vinyl acetate	ug/kg			ND	11	1

Login #L9804371
April 24, 1998 02:01 pm

KEMRON ENVIRONMENTAL SERVICES

Product 8260 - Volatile Organics

Lab Sample ID: L9804371 01
Client Sample ID: EAST PIT/0'-8'/COMP
Site/Work ID: SC001/DAYTON THERMAL PRODUCTS
Matrix Soil

Dil Type N/A
COC Info. N/A

Sample Weight: N/A
Extract Volume: N/A

Date Collected 04/21/98

% Solid: 93

TCLP Extract Date: N/A
Extract Date N/A
Analysis Date 04/23/98 Time: 15:18

Instrument HPH86
Analyst SLT
Lab File ID 6C307285

Method: 8260A
Run ID: R45316

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
75-01-4	Vinyl chloride	ug/kg		ND	11	1
95-47-6	o-Xylene	ug/kg		ND	5.4	1
108-38-3	m-Xylene	ug/kg	0.42	J,X	5.4	1
106-42-3	p-Xylene	ug/kg		X	5.4	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane	106	(80 - 120%)
1,2-Dichloroethane-d4	104	(80 - 120%)
Toluene-d8	103	(81 - 117%)
4-Bromofluorobenzene	98.6	(74 - 121%)

Lab Sample ID L9804371 02
Client Sample ID. WEST PIT/0-4'/COMP
Site/Work ID. SC001/DAYTON THERMAL PRODUCTS

Matrix Soil
Collected 04/21/98 1714

% Solid. 89
COC Info N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Percent Solids.	% wt.	89		1.0	-	N/A	MZL	04/22/98	14:20	D2216-90

KEMRON ENVIRONMENTAL SERVICES

Product: 8260 - Volatile Organics

Lab Sample ID: L9806371-02
Client Sample ID: WEST PIT/0-4'/COMP
Site/Mock ID: SC001/DAYTON THERMAL PRODUCTS
Matrix: Soil

Dil Type: N/A
COC Info.: N/A

Date Collected: 04/21/98

Sample Weight: N/A
Extract Volume: N/A

% Solid: 89

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 04/23/98 Time: 15:51

Instrument: HPMS6
Analyst: SLT
Lab File ID: 6CU07287

Method: 8260A
Run ID: R65316

Cas #	Compound	Units	Result	Qualifiers	RL	Dilution
67-64-1	Acetone	ug/kg	3 1	J	110	1
71-43-2	Benzene	ug/kg		ND	5.6	1
108-86-1	Bromobenzene	ug/kg		ND	5.6	1
74-97-5	Bromochloromethane	ug/kg		ND	5.6	1
75-27-4	Bromodichloromethane	ug/kg		ND	5.6	1
75-25-2	Bromoform	ug/kg		ND	5.6	1
74-83-9	Bromomethane	ug/kg		ND	11	1
78-93-3	2-Butanone	ug/kg		ND	110	1
104-51-8	n-Butylbenzene	ug/kg		ND	5.6	1
135-98-8	sec-Butylbenzene	ug/kg		ND	5.6	1
98-06-6	tert-Butylbenzene	ug/kg		ND	5.6	1
75-15-0	Carbon disulfide	ug/kg	0.44	J	5.6	1
56-23-5	Carbon tetrachloride	ug/kg		ND	5.6	1
108-90-7	Chlorobenzene	ug/kg		ND	5.6	1
124-48-1	Chlorodibromomethane	ug/kg		ND	5.6	1
75-00-3	Chloroethane	ug/kg		ND	11	1
110-75-8	2-Chloroethyl vinyl ether	ug/kg		ND	11	1
67-66-3	Chloroform	ug/kg		ND	5.6	1
74-87-3	Chloromethane	ug/kg		ND	11	1
95-49-8	2-Chlorotoluene	ug/kg		ND	5.6	1
106-43-4	4-Chlorotoluene	ug/kg		ND	5.6	1
96-12-8	1,2-Dibromo-3-chloropropane	ug/kg		ND	5.6	1
106-93-4	1,2-Dibromoethane	ug/kg		ND	5.6	1
74-95-3	Dibromomethane	ug/kg		ND	5.6	1
95-50-1	1,2-Dichlorobenzene	ug/kg		ND	5.6	1
541-73-1	1,3-Dichlorobenzene	ug/kg		ND	5.6	1
106-46-7	1,4-Dichlorobenzene	ug/kg		ND	5.6	1
75-71-8	Dichlorodifluoromethane	ug/kg		ND	11	1
75-34-3	1,1-Dichloroethane	ug/kg		ND	5.6	1
107-06-2	1,2-Dichloroethane	ug/kg		ND	5.6	1
75-35-4	1,1-Dichloroethene	ug/kg		ND	5.6	1
156-59-2	cis-1,2-Dichloroethene	ug/kg	92		5.6	1
156-60-5	trans-1,2-Dichloroethene	ug/kg	0.66	J	5.6	1
78-87-5	1,2-Dichloropropane	ug/kg		ND	5.6	1
142-28-9	1,3-Dichloropropane	ug/kg		ND	5.6	1
594-20-7	2,2-Dichloropropane	ug/kg		ND	5.6	1
10061-01-5	cis-1,3-Dichloropropene	ug/kg		ND	5.6	1
10061-02-6	trans-1,3-Dichloropropene	ug/kg		ND	5.6	1
563-58-6	1,1-Dichloropropene	ug/kg		ND	5.6	1

Logan #L9804371
April 24, 1998 02:01 pm

KEMRON ENVIRONMENTAL SERVICES

Product: 8260 - Volatile Organics

Lab Sample ID: L9804371-02
Client Sample ID: WEST PIT/0-4'/COMP.
Site/Work ID: SC001/DAYTON THERMAL PRODUCTS
Matrix: Soil

Dil. Type: N/A
COC Info: N/A

Date Collected: 04/21/98

Sample Weight: N/A
Extract Volume: N/A
% Solid: 89

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 04/23/98 Time: 15:51

Instrument: HPMS6
Analyst: SCT
Lab File ID: 6CV07207

Method: 826CA
Run ID: R45316

CAS #	Compound	Units		Result	Qualifiers	RL	Dilution
100-41-4	Ethylbenzene	ug/kg	TCLP		ND	5.6	1
591-78-6	2-Hexanone	ug/kg	Limit		ND	11	1
87-68-3	Hexachlorobutadiene	ug/kg			ND	5.6	1
98-82-8	Isopropylbenzene	ug/kg			ND	5.6	1
99-87-6	p-Isopropyltoluene	ug/kg			ND	5.6	1
108-10-1	4-Methyl-2-pentanone	ug/kg			ND	11	1
75-09-2	Methylene chloride	ug/kg		1.6	J	5.6	1
91-20-3	Naphthalene	ug/kg			ND	11	1
103-65-1	n-Propylbenzene	ug/kg			ND	5.6	1
100-42-5	Styrene	ug/kg			ND	5.6	1
630-20-6	1,1,1,2-Tetrachloroethane	ug/kg			ND	5.6	1
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg			ND	5.6	1
127-18-4	Tetrachloroethene	ug/kg			ND	5.6	1
108-88-3	Toluene	ug/kg		0.72	J	5.6	1
87-61-6	1,2,3-Trichlorobenzene	ug/kg			ND	5.6	1
120-82-1	1,2,4-Trichlorobenzene	ug/kg			ND	5.6	1
71-55-6	1,1,1-Trichloroethane	ug/kg			ND	5.6	1
79-00-5	1,1,2-Trichloroethane	ug/kg			ND	5.6	1
79-01-6	Trichloroethene	ug/kg	500	350	D	5.6	1
75-69-4	Trichlorofluoromethane	ug/kg			ND	11	1
96-18-4	1,2,3-Trichloropropane	ug/kg			ND	5.6	1
95-63-6	1,2,4-Trimethylbenzene	ug/kg			ND	5.6	1
108-67-8	1,3,5-Trimethylbenzene	ug/kg			ND	5.6	1
108-05-4	Vinyl acetate	ug/kg			ND	11	1
75-01-4	Vinyl chloride	ug/kg			ND	11	1
95-47-6	o-Xylene	ug/kg			ND	5.6	1
108-38-3	m-Xylene	ug/kg		0.52	J,X	5.6	1
106-42-3	p-Xylene	ug/kg			X	5.6	1

SURROGATES- % Percent Recovery:

Dibromofluoromethane	89.5		(80 - 120%)
1,2-Dichloroethane-d4	89.4		(80 - 120%)
Toluene-d8	79.2	*,RR	(81 - 117%)
4-Bromofluorobenzene	68.4	*,RR	(74 - 121%)

Login #L9804371
April 24, 1998 12 01 pm

KENNON ENVIRONMENTAL SERVICES

Product- 826-VAP - Volatile Organics

Lab Sample ID: L9804371-03
Client Sample ID TB042198
Site/Work ID SC001/DAYTON THERMAL PRODUCTS
Matrix: Water

Dil Type. N/A
COC Info: N/A

Date Collected 04/21/98

Sample Weight. N/A
Extract Volume: N/A

% Solid N/A

TCLP Extract Date N/A
Extract Date. N/A
Analysis Date: 04/22/98 Time 18:55

Instrument HPMSE
Analyst JLH
Lab File ID SCC01478

Method 8260A
Run ID R45243

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
67-64-1	Acetone	ug/L		ND	100	1
71-43-2	Benzene	ug/L		ND	5.0	1
108-86-1	Bromobenzene	ug/L		ND	5.0	1
74-97-5	Bromochloromethane	ug/L		ND	5.0	1
75-27-4	Bromodichloromethane	ug/L		ND	5.0	1
75-25-2	Bromoform	ug/L		ND	5.0	1
74-83-9	Bromomethane	ug/L		ND	10	1
78-93-3	2-Butanone	ug/L		ND	100	1
104-51-8	n-Butylbenzene	ug/L		ND	5.0	1
135-98-8	sec-Butylbenzene	ug/L		ND	5.0	1
98-06-6	tert-Butylbenzene	ug/L		ND	5.0	1
75-15-0	Carbon disulfide	ug/L		ND	5.0	1
56-23-5	Carbon tetrachloride	ug/L		ND	5.0	1
108-90-7	Chlorobenzene	ug/L		ND	100	1
124-48-1	Chlorodibromomethane	ug/L		ND	5.0	1
75-00-3	Chloroethane	ug/L		ND	10	1
110-75-8	2-Chloroethyl vinyl ether	ug/L		ND	10	1
67-66-3	Chloroform	ug/L		ND	5.0	1
74-87-3	Chloromethane	ug/L		ND	10	1
95-49-8	2-Chlorotoluene	ug/L		ND	5.0	1
106-43-4	4-Chlorotoluene	ug/L		ND	5.0	1
96-12-8	1,2-Dibromo-3-chloropropane	ug/L		ND	5.0	1
106-93-4	1,2-Dibromoethane	ug/L		ND	5.0	1
74-95-3	Dibromomethane	ug/L		ND	5.0	1
95-50-1	1,2-Dichlorobenzene	ug/L		ND	600	1
541-73-1	1,3-Dichlorobenzene	ug/L		ND	5.0	1
106-46-7	1,4-Dichlorobenzene	ug/L		ND	75	1
75-71-8	Dichlorodifluoromethane	ug/L		ND	10	1
75-34-3	1,1-Dichloroethane	ug/L		ND	5.0	1
107-06-2	1,2-Dichloroethane	ug/L		ND	5.0	1
75-35-4	1,1-Dichloroethene	ug/L		ND	7.0	1
156-59-2	cis-1,2-Dichloroethene	ug/L		ND	70	1
156-60-5	trans-1,2-Dichloroethene	ug/L		ND	100	1
78-87-5	1,2-Dichloropropane	ug/L		ND	5.0	1
142-28-9	1,3-Dichloropropane	ug/L		ND	5.0	1
594-20-7	2,2-Dichloropropane	ug/L		ND	5.0	1
10061-01-5	cis-1,3-Dichloropropene	ug/L		ND	5.0	1
10061-02-6	trans-1,3 Dichloropropene	ug/L		ND	5.0	1
563-58-6	1,1-Dichloropropene	ug/L		ND	5.0	1

Product: 626-VAP - Volatile Organics

Lab Sample ID: L9804171-03
Client Sample ID: TB042198
Site/Work ID: SC001/DAYTON THERMAL PRODUCTS
Matrix: Water

Dil. Type: N/A
COC Info: N/A

Date Collected: 04/21/98

Sample Weight: N/A
Extract Volume: N/A

% Solid: N/A

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 04/22/98 Time: 18.55

Instrument: HPMS6
Analyst: JLH
Lab File ID: BCC01478

Method: 8260A
Run ID: R45243

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
100-41-4	Ethylbenzene	ug/L		ND	700	1
591-78-6	2-Hexanone	ug/L		ND	10	1
87-68-3	Hexachlorobutadiene	ug/L		ND	5.0	1
98-82-8	Isopropylbenzene	ug/L		ND	5.0	1
99-87-6	p-Isopropyltoluene	ug/L		ND	5.0	1
108-10-1	4-Methyl-2-pentanone	ug/L		ND	10	1
75-09-2	Dichloromethane	ug/L	3.0	J	5.0	1
91-20-3	Naphthalene	ug/L		ND	10	1
103-65-1	n-Propylbenzene	ug/L		ND	5.0	1
100-42-5	Styrene	ug/L		ND	100	1
630-20-6	1,1,1,2-Tetrachloroethane	ug/L		ND	5.0	2
79-34-5	1,1,2,2-Tetrachloroethane	ug/L		ND	5.0	2
127-18-4	Tetrachloroethene	ug/L		ND	5.0	2
108-88-3	Toluene	ug/L		ND	1000	1
87-61-6	1,2,3-Trichlorobenzene	ug/L		ND	5.0	1
120-82-1	1,2,4-Trichlorobenzene	ug/L		ND	70	1
71-55-6	1,1,1-Trichloroethane	ug/L		ND	200	1
79-00-5	1,1,2-Trichloroethane	ug/L		ND	5.0	1
79-01-6	Trichloroethene	ug/L		ND	5.0	1
75-69-4	Trichlorofluoromethane	ug/L		ND	10	1
96-18-4	1,2,3-Trichloropropane	ug/L		ND	5.0	1
95-63-6	1,2,4-Trimethylbenzene	ug/L		ND	5.0	1
108-67-8	1,3,5-Trimethylbenzene	ug/L		ND	5.0	1
108-05-4	Vinyl acetate	ug/L		ND	10	1
75-01-4	Vinyl chloride	ug/L		ND	2.0	1
1330-20-7	Xylenes, Total	ug/L		ND	10000	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane	102	(86 - 118%)
1,2-Dichloroethane-d4	104	(80 - 120%)
Toluene-d8	98.4	(88 - 110%)
4-Bromofluorobenzene	112	(86 - 115%)

Login #L9804371
April 24, 1998 02 01 pm

KEMRON ENVIRONMENTAL SERVICES

Product 826-VAP - Volatile Organics

Lab Sample ID: L9804371-04
Client Sample ID: SB04219838D0
Site/Work ID: SC001/DAYTON THERMAL PRODUCTS
Matrix: Water

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 04/22/98 Time 19:29

Dil Type N/A
COC Info N/A

Date Collected: 04/21/98

Instrument: HPMSE
Analyst: JLH
Lab File ID: BCC01479

Sample Weight N/A
Extract Volume N/A

% Solid N/A

Method: 8260A
Run ID R15243

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
67-64-1	Acetone	ug/L		ND	100	1
71-43-2	Benzene	ug/L		ND	5.0	1
108-86-1	Bromobenzene	ug/L		ND	5.0	1
74-97-5	Bromochloromethane	ug/L		ND	5.0	1
75-27-4	Bromodichloromethane	ug/L		ND	5.0	1
75-25-2	Bromoform	ug/L		ND	5.0	1
74-83-9	Bromomethane	ug/L		ND	10	1
78-93-3	2-Butanone	ug/L		ND	100	1
104-51-8	n-Butylbenzene	ug/L		ND	5.0	1
135-98-8	sec-Butylbenzene	ug/L		ND	5.0	1
98-06-6	tert-Butylbenzene	ug/L		ND	5.0	1
75-15-0	Carbon disulfide	ug/L		ND	5.0	1
56-23-5	Carbon tetrachloride	ug/L		ND	5.0	1
108-90-7	Chlorobenzene	ug/L		ND	100	1
124-48-1	Chlorodibromomethane	ug/L		ND	5.0	1
75-00-3	Chloroethane	ug/L		ND	10	1
110-75-8	2-Chloroethyl vinyl ether	ug/L		ND	10	1
67-66-3	Chloroform	ug/L		ND	5.0	1
74-87-3	Chloromethane	ug/L		ND	10	1
95-49-8	2-Chlorotoluene	ug/L		ND	5.0	1
106-43-4	4-Chlorotoluene	ug/L		ND	5.0	1
96-12-8	1,2-Dibromo-3-chloropropane	ug/L		ND	5.0	1
106-93-4	1,2-Dibromoethane	ug/L		ND	5.0	1
74-95-3	Dibromomethane	ug/L		ND	5.0	1
95-50-1	1,2-Dichlorobenzene	ug/L		ND	600	1
541-73-1	1,3-Dichlorobenzene	ug/L		ND	5.0	1
106-46-7	1,4-Dichlorobenzene	ug/L		ND	75	1
75-71-8	Dichlorodifluoromethane	ug/L		ND	10	1
75-34-3	1,1-Dichloroethane	ug/L		ND	5.0	1
107-06-2	1,2-Dichloroethane	ug/L		ND	5.0	1
75-35-4	1,1-Dichloroethene	ug/L		ND	7.0	1
156-59-2	cis-1,2-Dichloroethene	ug/L		ND	70	1
156-60-5	trans-1,2-Dichloroethene	ug/L		ND	100	1
78-87-5	1,2-Dichloropropane	ug/L		ND	5.0	1
142-28-9	1,3-Dichloropropane	ug/L		ND	5.0	1
594-20-7	2,2-Dichloropropane	ug/L		ND	5.0	1
10061-01-5	cis 1,3-Dichloropropene	ug/L		ND	5.0	1
10061 02-6	trans-1,3-Dichloropropene	ug/L		ND	5.0	1
563-58-6	1,1-Dichloropropene	ug/L		ND	5.0	1

Login L19804371
April 24, 1998 02 01 pm

KEMRON ENVIRONMENTAL SERVICES

Product: 826-VAP - Volatile Organics

Lab Sample ID	L9804371-04				
Client Sample ID	EB0421981800	Dil. Type.	N/A	Sample Weight	N/A
Site/Work ID	SC001/DAYTON THERMAL PRODUCTS	COC Info.	N/A	Extract Volume.	N/A
Matrix	Water	Date Collected	04/21/98		
TCLP Extract Date	N/A			% Solid.	N/A
Extract Date.	N/A	Instrument.	HP480	Method	8260A
Analysis Date:	04/22/98 Time: 19 29	Analyst.	JLH	Run ID.	R45243
		Lab File ID:	8CC01479		

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
100-41-4	Ethylbenzene	ug/L		ND	700	1
591-78-6	2-Hexanone	ug/L		ND	10	1
87-68-3	Hexachlorobutadiene	ug/L		ND	5.0	1
98-82-8	Isopropylbenzene	ug/L		ND	5.0	1
99-87-6	p-Isopropyltoluene	ug/L		ND	5.0	1
108-10-1	4-Methyl-2-pentanone	ug/L		ND	10	1
75-09-2	Dichloromethane	ug/L	4.0	J	5.0	1
91-20-3	Naphthalene	ug/L		ND	10	1
103-65-1	n-Propylbenzene	ug/L		ND	5.0	1
100-42-5	Styrene	ug/L		ND	100	1
630-20-6	1,1,1,2-Tetrachloroethane	ug/L		ND	5.0	1
79-34-5	1,1,2,2-Tetrachloroethane	ug/L		ND	5.0	1
127-18-4	Tetrachloroethene	ug/L		ND	5.0	1
108-88-3	Toluene	ug/L		ND	1000	1
87-61-6	1,2,3-Trichlorobenzene	ug/L		ND	5.0	1
120-82-1	1,2,4-Trichlorobenzene	ug/L		ND	70	1
71-55-6	1,1,1-Trichloroethane	ug/L		ND	200	1
79-00-5	1,1,2-Trichloroethane	ug/L		ND	5.0	1
79-01-6	Trichloroethene	ug/L		ND	5.0	1
75-69-4	Trichlorofluoromethane	ug/L		ND	10	1
96-18-4	1,2,3-Trichloropropane	ug/L		ND	5.0	1
95-63-6	1,2,4-Trimethylbenzene	ug/L		ND	5.0	1
108-67-8	1,3,5-Trimethylbenzene	ug/L		ND	5.0	1
108-05-4	Vinyl acetate	ug/L		ND	10	1
75-01-4	Vinyl chloride	ug/L		ND	2.0	1
1330-20-7	Xylenes, Total	ug/L		ND	10000	1

SURROGATES- In Percent Recovery:

Surrogate	Recovery	Limits
Dibromofluoromethane	104	(86 - 118%)
1,2-Dichloroethane-d4	105	(80 - 120%)
Toluene-d8	99.4	(88 - 110%)
4-Bromofluorobenzene	111	(86 - 115%)

NET® NATIONAL ENVIRONMENTAL TESTING, INC.

Dayton Division
3601 South Dixie Drive
Dayton, OH 45439
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FAX TRANSMISSION NOTICE

Date: 4-28

Time:

To: Joe Whitlock / Ken Vogel

Company: Chrysler Dayton / LBG Inc

Sender. John Andrejcio

You should receive 21 pages, including this notice. If you do not receive all pages, please call the sender immediately. Our FAX number is : (937) 294-7816

Comments:

Analytical Results NET Job 98-06469.

Oil/water 12" Pipe Bldg 40B

224-2915 / 612 490-1086

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NET NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

NET Job Number: 98.06469

Enclosed is the analytical report for the following sample(s) submitted to the Dayton Division of NET, Inc. for analysis:

Sample Number	Sample Description	Date Taken	Date Received
467067	Oil Phase	04/21/1998	04/22/1998
467068	Water Phase	04/21/1998	04/22/1998

National Environmental Testing, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed

Reproduction of this analytical report is permitted only in its entirety

Enclosure
FAX Ken Vogel, LBG, Inc.

Project Coordinator

NATIONAL ENVIRONMENTAL TESTING, INC.

Dayton Division
3601 South Dixie Drive
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ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98.06469

SAMPLE NO.: 467067

Sample Description Oil Phase
Client Project ID: Dayton Thermal Building 40B

Date Taken: 04/21/1998

Date Received: 04/22/1998

Parameter	TCLP	Result	Unit	Date Anal.	Analyst
ARSENIC, ICP		<3.3	mg/Kg	04/23/1998	daa
BARIUM, ICP	Max 100	18	mg/Kg	04/23/1998	daa
CADMIUM, ICP		<0.99	mg/Kg	04/23/1998	daa
CHROMIUM, ICP	Max 5.0	1.4	mg/Kg	04/23/1998	daa
LEAD, ICP	Max 5.0	12.8	mg/Kg	04/23/1998	daa
MERCURY,CVAA	Max 0.2	0.012	mg/Kg	04/23/1998	jmm
SELENIUM, ICP		<3.3	mg/Kg	04/23/1998	daa
SILVER, ICP		<1 3	mg/Kg	04/23/1998	daa
Ignitability (Flash Point)		>60	Degree C	04/23/1998	cca

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ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98.06469

SAMPLE NO.. 467067

Sample Description: Oil Phase
Client Project ID: Dayton Thermal Building 40B

Date Taken 04/21/1998 Date Received 04/22/1998

VOLATILE COMPOUNDS-8260 Non-Aq

Parameter	Result	Unit	Date Anal	Analyst
8260 - SW846	C		04/22/1998	jpf
Acetone	<20,000	ug/Kg	04/22/1998	jpf
Acrylonitrile	<10,000	ug/Kg	04/22/1998	jpf
Allyl chloride	<1,000	ug/Kg	04/22/1998	jpf
Benzene	<1,000	ug/Kg	04/22/1998	jpf
tert-Butylbenzene	<1,000	ug/Kg	04/22/1998	jpf
sec-Butylbenzene	<1,000	ug/Kg	04/22/1998	jpf
n-Butylbenzene	<1,000	ug/Kg	04/22/1998	jpf
Bromochloromethane	<1,000	ug/Kg	04/22/1998	jpf
Bromodichloromethane	<1,000	ug/Kg	04/22/1998	jpf
Bromoform	<1,000	ug/Kg	04/22/1998	jpf
Bromobenzene	<1,000	ug/Kg	04/22/1998	jpf
2-Butanone (MEK)	<20,000	ug/Kg	04/22/1998	jpf
Carbon disulfide	<1,000	ug/Kg	04/22/1998	jpf
Carbon tetrachloride	<1,000	ug/Kg	04/22/1998	jpf
Chlorobenzene	<1,000	ug/Kg	04/22/1998	jpf
Chloroethane	<2,000	ug/Kg	04/22/1998	jpf
2-Chlorotoluene	<1,000	ug/Kg	04/22/1998	jpf
4-Chlorotoluene	<1,000	ug/Kg	04/22/1998	jpf
Chloroform	<1,000	ug/Kg	04/22/1998	jpf
Chloromethane	<2,000	ug/Kg	04/22/1998	jpf
Chloroprene	<1,000	ug/Kg	04/22/1998	jpf
Dibromochloromethane	<1,000	ug/Kg	04/22/1998	jpf
Dibromomethane	<1,000	ug/Kg	04/22/1998	jpf
Dichlorodifluoromethane	<1,000	ug/Kg	04/22/1998	jpf
1,2-Dibromo-3-chloropropane	<1,000	ug/Kg	04/22/1998	jpf
1,2-Dibromoethane (EDB)	<1,000	ug/Kg	04/22/1998	jpf
1,2-Dichlorobenzene	<1,000	ug/Kg	04/22/1998	jpf
1,3-Dichlorobenzene	<1,000	ug/Kg	04/22/1998	jpf
1,4-Dichlorobenzene	<1,000	ug/Kg	04/22/1998	jpf
trans-1,4-Dichloro-2-butene	<1,000	ug/Kg	04/22/1998	jpf
1,1-Dichloroethane	<1,000	ug/Kg	04/22/1998	jpf
1,2-Dichloroethane	<1,000	ug/Kg	04/22/1998	jpf

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ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98 06469

SAMPLE NO. 467067

Sample Description: Oil Phase
Client Project ID Dayton Thermal Building 40B

Date Taken: 04/21/1998 Date Received: 04/22/1998

VOLATILE COMPOUNDS-8260 Non-Aq

Parameter	Result	Unit	Date Anal.	Analyst
1,1-Dichloroethene	<1,000	ug/Kg	04/22/1998	jpf
cis-1,2-Dichloroethene	1,940	ug/Kg	04/22/1998	jpf
trans-1,2-Dichloroethene	<1,000	ug/Kg	04/22/1998	jpf
1,2-Dichloropropane	<1,000	ug/Kg	04/22/1998	jpf
1,3-Dichloropropane	<1,000	ug/Kg	04/22/1998	jpf
2,2-Dichloropropane	<1,000	ug/Kg	04/22/1998	jpf
1,1-Dichloropropene	<1,000	ug/Kg	04/22/1998	jpf
cis-1,3-Dichloropropene	<1,000	ug/Kg	04/22/1998	jpf
trans-1,3-Dichloropropene	<1,000	ug/Kg	04/22/1998	jpf
Ethyl methacrylate	<1,000	ug/Kg	04/22/1998	jpf
Ethylbenzene	<1,000	ug/Kg	04/22/1998	jpf
Hexachlorobutadiene	<1,000	ug/Kg	04/22/1998	jpf
2-Hexanone	<10,000	ug/Kg	04/22/1998	jpf
Iodomethane (Methyl Iodide)	<1,000	ug/Kg	04/22/1998	jpf
Isopropylbenzene (Cumene)	<1,000	ug/Kg	04/22/1998	jpf
p-Isopropyltoluene	<1,000	ug/Kg	04/22/1998	jpf
Methacrylonitrile	<1,000	ug/Kg	04/22/1998	jpf
Bromomethane	<2,000	ug/Kg	04/22/1998	jpf
Methylene Chloride	<2,000	ug/Kg	04/22/1998	jpf
Methyl t-butyl ether (MTBE)	<1,000	ug/Kg	04/22/1998	jpf
4-Methyl-2-pentanone (MIBK)	<10,000	ug/Kg	04/22/1998	jpf
Methyl methacrylate	<1,000	ug/Kg	04/22/1998	jpf
Pentachloroethane	<1,000	ug/Kg	04/22/1998	jpf
Propionitrile	<10,000	ug/Kg	04/22/1998	jpf
n-Propylbenzene	1,470	ug/Kg	04/22/1998	jpf
Styrene	<1,000	ug/Kg	04/22/1998	jpf
Naphthalene	<1,000	ug/Kg	04/22/1998	jpf
1,1,1,2-Tetrachloroethane	<1,000	ug/Kg	04/22/1998	jpf
1,1,2,2-Tetrachloroethane	<1,000	ug/Kg	04/22/1998	jpf
Tetrachloroethene	<1,000	ug/Kg	04/22/1998	jpf
Toluene	<1,000	ug/Kg	04/22/1998	jpf
1,2,4-Trichlorobenzene	<1,000	ug/Kg	04/22/1998	jpf
1,1,1-Trichloroethane	<1,000	ug/Kg	04/22/1998	jpf

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ANALYTICAL REPORT

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1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98.06469

SAMPLE NO.: 467067

Sample Description: Oil Phase
Client Project ID: Dayton Thermal Building 40B

Date Taken: 04/21/1998 Date Received: 04/22/1998

VOLATILE COMPOUNDS-8260 Non-Aq

Parameter	TCLP	Result	Unit	Date Anal.	Analyst
1,1,2-Trichloroethane		<1,000	ug/Kg	04/22/1998	jpf
Trichloroethene	500	3,060	ug/Kg	04/22/1998	jpf
Trichlorofluoromethane		<1,000	ug/Kg	04/22/1998	jpf
1,2,3-Trichloropropane		<1,000	ug/Kg	04/22/1998	jpf
1,2,4-Trimethylbenzene		<1,000	ug/Kg	04/22/1998	jpf
1,2,3-Trichlorobenzene		<1,000	ug/Kg	04/22/1998	jpf
Vinyl Acetate		<1,000	ug/Kg	04/22/1998	jpf
Vinyl Chloride		<400	ug/Kg	04/22/1998	jpf
Xylenes		<1,000	ug/Kg	04/22/1998	jpf
Surrogate Dibromofluoromethane		102	%	04/22/1998	jpf
Surrogate Toluene-d8		97	%	04/22/1998	jpf
Surrogate:Bromofluorobenzene		93	%	04/22/1998	jpf

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1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98 06469

SAMPLE NO : 467067

Sample Description: Oil Phase
Client Project ID: Dayton Thermal Building 40B

Date Taken: 04/21/1998

Date Received: 04/22/1998

BASE NEUT. COMPS.-8270 Non-aq

Parameter	Result	Unit	Date Anal	Analyst
Acenaphthene	<100	mg/Kg	04/25/1998	dal
Acenaphthylene	<100	mg/Kg	04/25/1998	dal
Anthracene	<100	mg/Kg	04/25/1998	dal
Benzo(a)anthracene	<100	mg/Kg	04/25/1998	dal
Benzo(b)fluoranthene	<100	mg/Kg	04/25/1998	dal
Benzo(k)fluoranthene	<100	mg/Kg	04/25/1998	dal
Benzo(a)pyrene	<100	mg/Kg	04/25/1998	dal
Benzo(ghi)perylene	<100	mg/Kg	04/25/1998	dal
Benzyl alcohol	<100	mg/Kg	04/25/1998	dal
Benzyl butyl phthalate	<100	mg/Kg	04/25/1998	dal
Bis(2-chloroethyl)ether	<100	mg/Kg	04/25/1998	dal
Bis(2-chloroethoxy)methane	<100	mg/Kg	04/25/1998	dal
Bis(2-ethylhexyl)phthalate	<100	mg/Kg	04/25/1998	dal
Bis(2chloroisopropyl)ether	<100	mg/Kg	04/25/1998	dal
4-Bromophenyl phenyl ether	<100	mg/Kg	04/25/1998	dal
4-Chloroaniline	<100	mg/Kg	04/25/1998	dal
2-Chloronaphthalene	<100	mg/Kg	04/25/1998	dal
4-Chlorophenylphenyl ether	<100	mg/Kg	04/25/1998	dal
Chrysene	<100	mg/Kg	04/25/1998	dal
Dibenzo(a,h)anthracene	<100	mg/Kg	04/25/1998	dal
Dibenzofuran	<100	mg/Kg	04/25/1998	dal
Di-n-butylphthalate	<100	mg/Kg	04/25/1998	dal
1,2-Dichlorobenzene	<100	mg/Kg	04/25/1998	dal
1,3-Dichlorobenzene	<100	mg/Kg	04/25/1998	dal
1,4-Dichlorobenzene	<100	mg/Kg	04/25/1998	dal
3,3'-Dichlorobenzidine	<100	mg/Kg	04/25/1998	dal
Diethyl phthalate	<100	mg/Kg	04/25/1998	dal
Dimethyl phthalate	<100	mg/Kg	04/25/1998	dal
2,4-Dinitrotoluene	<100	mg/Kg	04/25/1998	dal
2,6-Dinitrotoluene	<100	mg/Kg	04/25/1998	dal
Di-n-octylphthalate	<100	mg/Kg	04/25/1998	dal
Fluoranthene	<100	mg/Kg	04/25/1998	dal
Fluorene	<100	mg/Kg	04/25/1998	dal

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ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98.06469

SAMPLE NO.: 467067

Sample Description. Oil Phase
Client Project ID. Dayton Thermal Building 40B

Date Taken: 04/21/1998 Date Received: 04/22/1998

BASE NEUT COMPS -8270 Non-aq

Parameter	Result	Unit	Date Anal.	Analyst
Hexachlorobenzene	<100	mg/Kg	04/25/1998	dal
Hexachloro-1,3-butadiene	<100	mg/Kg	04/25/1998	dal
Hexachlorocyclopentadiene	<100	mg/Kg	04/25/1998	dal
Hexachloroethane	<100	mg/Kg	04/25/1998	dal
Indeno(1,2,3-cd)pyrene	<100	mg/Kg	04/25/1998	dal
Isophorone	<100	mg/Kg	04/25/1998	dal
Naphthalene	<100	mg/Kg	04/25/1998	dal
Nitrobenzene	<100	mg/Kg	04/25/1998	dal
N-Nitrosodi-n-propylamine	<100	mg/Kg	04/25/1998	dal
Phenanthrene	<100	mg/Kg	04/25/1998	dal
Pyrene	<100	mg/Kg	04/25/1998	dal
1,2,4-Trichlorobenzene	<100	mg/Kg	04/25/1998	dal
Surrogate: d5-Nitrobenzene	91	%	04/25/1998	dal
Surrogate. 2-Fluorobiphenyl	86	%	04/25/1998	dal
Surrogate: d14-Terphenyl	141	%	04/25/1998	dal

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Joe Whitlock
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1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98 06469

SAMPLE NO.: 467067

Sample Description: Oil Phase
Client Project ID: Dayton Thermal Building 40B

Date Taken: 04/21/1998 Date Received: 04/22/1998

ACID COMPOUNDS - 8270 Non-aq

Parameter	Result	Unit	Date Anal.	Analyst
Benzoic Acid	<100	mg/Kg	04/25/1998	dal
4-Chloro-3-methylphenol	<100	mg/Kg	04/25/1998	dal
2-Chlorophenol	<100	mg/Kg	04/25/1998	dal
2,4-Dichlorophenol	<100	mg/Kg	04/25/1998	dal
2,4-Dimethylphenol	<100	mg/Kg	04/25/1998	dal
2,4-Dinitrophenol	<100	mg/Kg	04/25/1998	dal
2-Methyl-4,6-dinitrophenol	<100	mg/Kg	04/25/1998	dal
2-Methylphenol	<100	mg/Kg	04/25/1998	dal
meta & para-Methylphenol	<100	mg/Kg	04/25/1998	dal
2-Nitrophenol	<100	mg/Kg	04/25/1998	dal
4-Nitrophenol	<100	mg/Kg	04/25/1998	dal
Pentachlorophenol	<100	mg/Kg	04/25/1998	dal
Phenol	<100	mg/Kg	04/25/1998	dal
2,4,5-Trichlorophenol	<100	mg/Kg	04/25/1998	dal
2,4,6-Trichlorophenol	<100	mg/Kg	04/25/1998	dal
Surrogate. d6-Phenol	108	%	04/25/1998	dal
Surrogate: 2-Fluorophenol	103	%	04/25/1998	dal
Surrogate: Tribromophenol	112	%	04/25/1998	dal

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ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98 06169

SAMPLE NO.: 467067

Sample Description: Oil Phase
Client Project ID. Dayton Thermal Building 40B

Date Taken 04/21/1998 Date Received: 04/22/1998

PESTICIDES/PCB'S - 8080 Non-aq

Parameter	Result	Unit	Date Anal	Analyst
Aldrin	<5.0	mg/Kg	04/23/1998	jdc
alpha-BHC	<5.0	mg/Kg	04/23/1998	jdc
beta-BHC	<5.0	mg/Kg	04/23/1998	jdc
gamma-BHC (Lindane)	<5.0	mg/Kg	04/23/1998	jdc
delta-BHC	<5.0	mg/Kg	04/23/1998	jdc
Chlordane	<5 0	mg/Kg	04/23/1998	jdc
4,4'-DDD	<5.0	mg/Kg	04/23/1998	jdc
4,4'-DDE	<5.0	mg/Kg	04/23/1998	jdc
4,4'-DDT	<5.0	mg/Kg	04/23/1998	jdc
Dieldrin	<5.0	mg/Kg	04/23/1998	jdc
Endosulfan I	<5.0	mg/Kg	04/23/1998	jdc
Endosulfan II	<5.0	mg/Kg	04/23/1998	jdc
Endosulfan Sulfate	<5.0	mg/Kg	04/23/1998	jdc
Endrin	<5.0	mg/Kg	04/23/1998	jdc
Endrin Aldehyde	<5.0	mg/Kg	04/23/1998	jdc
Heptachlor	<5.0	mg/Kg	04/23/1998	jdc
Heptachlor Epoxide	<5.0	mg/Kg	04/23/1998	jdc
Methoxychlor	<5.0	mg/Kg	04/23/1998	jdc
Toxaphene	<5 0	mg/Kg	04/23/1998	jdc
Aroclor 1016	<5 0	mg/Kg	04/23/1998	jdc
Aroclor 1221	<5 0	mg/Kg	04/23/1998	jdc
Aroclor 1232	<5 0	mg/Kg	04/23/1998	jdc
Aroclor 1242	<5 0	mg/Kg	04/23/1998	jdc
Aroclor 1248	<5 0	mg/Kg	04/23/1998	jdc
Aroclor 1254	<5 0	mg/Kg	04/23/1998	jdc
Aroclor 1260	<5.0	mg/Kg	04/23/1998	jdc
Surrogate	82 5	%	04/23/1998	jdc

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ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98.06469

SAMPLE NO : 467068

Sample Description: Water Phase
Client Project ID Dayton Thermal Building 40B

Date Taken: 04/21/1998

Date Received: 04/22/1998

Parameter	Result	Unit	Date Anal.	Analyst
Chromium, Hexavalent	<0.010	mg/L	04/23/1998	plk
pH (Lab)	8.95	S U.	04/22/1998	dgr
ARSENIC, ICP	<0.10	mg/L	04/23/1998	mhr
BARIUM, ICP	0.212	mg/L	04/23/1998	mhr
CADMIUM, ICP	<0.030	mg/L	04/23/1998	mhr
CHROMIUM, ICP	0.055	mg/L	04/23/1998	mhr
LEAD, ICP	0 145	mg/L	04/23/1998	mhr
MERCURY,CVAA	<0.0002	mg/L	04/24/1998	jmm
SELENIUM, ICP	<0.10	mg/L	04/23/1998	mhr
SILVER, ICP	<0.040	mg/L	04/23/1998	mhr
Ignitability (Flash Point)	>60	Degree C	04/23/1998	cca
Reactive Sulfide	<25	mg/Kg	04/27/1998	sub
Reactive Cyanide	<25	mg/Kg	04/27/1998	sub

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1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98 06469

SAMPLE NO.: 467068

Sample Description: Water Phase
Client Project ID: Dayton Thermal Building 40B

Date Taken: 04/21/1998

Date Received: 04/22/1998

VOLATILE COMPOUNDS - 8260

Parameter	Result	Unit	Date Anal	Analyst
8260 - SW846	C		04/23/1998	jpf
Acetone	1,170	ug/L	04/23/1998	jpf
Acrylonitrile	<100	ug/L	04/23/1998	jpf
Allyl chloride	<10	ug/L	04/23/1998	jpf
Benzene	<10	ug/L	04/23/1998	jpf
tert-Butylbenzene	<10	ug/L	04/23/1998	jpf
sec-Butylbenzene	<10	ug/L	04/23/1998	jpf
n-Butylbenzene	<10	ug/L	04/23/1998	jpf
Bromochloromethane	<10	ug/L	04/23/1998	jpf
Bromodichloromethane	<10	ug/L	04/23/1998	jpf
Bromoform	<10	ug/L	04/23/1998	jpf
Bromobenzene	<10	ug/L	04/23/1998	jpf
2-Butanone (MEK)	<200	ug/L	04/23/1998	jpf
Carbon disulfide	<10	ug/L	04/23/1998	jpf
Carbon tetrachloride	<10	ug/L	04/23/1998	jpf
Chlorobenzene	<10	ug/L	04/23/1998	jpf
Chloroethane	<20	ug/L	04/23/1998	jpf
2-Chlorotoluene	<10	ug/L	04/23/1998	jpf
4-Chlorotoluene	<10	ug/L	04/23/1998	jpf
Chloroform	<10	ug/L	04/23/1998	jpf
Chloromethane	<20	ug/L	04/23/1998	jpf
Chloroprene	<10	ug/L	04/23/1998	jpf
Dibromochloromethane	<10	ug/L	04/23/1998	jpf
Dibromomethane	<10	ug/L	04/23/1998	jpf
Dichlorodifluoromethane	<10	ug/L	04/23/1998	jpf
1,2-Dibromo-3-chloropropane	<10	ug/L	04/23/1998	jpf
1,2-Dibromoethane (EDB)	<10	ug/L	04/23/1998	jpf
1,2-Dichlorobenzene	<10	ug/L	04/23/1998	jpf
1,3-Dichlorobenzene	<10	ug/L	04/23/1998	jpf
1,4-Dichlorobenzene	<10	ug/L	04/23/1998	jpf
trans-1,4-Dichloro 2-butene	<10	ug/L	04/23/1998	jpf
1,1-Dichloroethane	<10	ug/L	04/23/1998	jpf
1,2-Dichloroethane	<10	ug/L	04/23/1998	jpf

NET NATIONAL ENVIRONMENTAL TESTING, INC.

Dayton Division
3601 South Dixie Drive
Dayton, OH 45439
Tel (937) 294-6856
Fax (937) 294-7816

ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98.06469

SAMPLE NO.: 467068

Sample Description: Water Phase
Client Project ID: Dayton Thermal Building 40B

Date Taken: 04/21/1998 Date Received. 04/22/1998

VOLATILE COMPOUNDS - 8260

Parameter	Result	Unit	Date Anal	Analyst
1,1-Dichloroethene	<10	ug/L	04/23/1998	jpf
cis-1,2-Dichloroethene	274	ug/L	04/23/1998	jpf
trans-1,2-Dichloroethene	<10	ug/L	04/23/1998	jpf
1,2-Dichloropropane	<10	ug/L	04/23/1998	jpf
1,3-Dichloropropane	<10	ug/L	04/23/1998	jpf
2,2-Dichloropropane	<10	ug/L	04/23/1998	jpf
1,1-Dichloropropene	<10	ug/L	04/23/1998	jpf
cis-1,3-Dichloropropene	<10	ug/L	04/23/1998	jpf
trans-1,3-Dichloropropene	<10	ug/L	04/23/1998	jpf
Ethyl methacrylate	<10	ug/L	04/23/1998	jpf
Ethylbenzene	<10	ug/L	04/23/1998	jpf
Hexachlorobutadiene	<10	ug/L	04/23/1998	jpf
2-Hexanone	<100	ug/L	04/23/1998	jpf
Iodomethane (Methyl Iodide)	<10	ug/L	04/23/1998	jpf
Isopropylbenzene (Cumene)	<10	ug/L	04/23/1998	jpf
p-Isopropyltoluene	<10	ug/L	04/23/1998	jpf
Methacrylonitrile	<10	ug/L	04/23/1998	jpf
Bromomethane	<20	ug/L	04/23/1998	jpf
Methylene Chloride	63 6	ug/L	04/23/1998	jpf
Methyl t-butyl ether (MTBE)	<10	ug/L	04/23/1998	jpf
4 Methyl-2-pentanone (MIBK)	<100	ug/L	04/23/1998	jpf
Methyl methacrylate	<10	ug/L	04/23/1998	jpf
Pentachloroethane	<10	ug/L	04/23/1998	jpf
Propionitrile	<100	ug/L	04/23/1998	jpf
n-Propylbenzene	<10	ug/L	04/23/1998	jpf
Styrene	<10	ug/L	04/23/1998	jpf
Naphthalene	<10	ug/L	04/23/1998	jpf
1,1,1,2-Tetrachloroethane	<10	ug/L	04/23/1998	jpf
1,1,2,2-Tetrachloroethane	<10	ug/L	04/23/1998	jpf
Tetrachloroethene	<10	ug/L	04/23/1998	jpf
Toluene	<10	ug/L	04/23/1998	jpf
1,2,4-Trichlorobenzene	<10	ug/L	04/23/1998	jpf
1,1,1-Trichloroethane	<10	ug/L	04/23/1998	jpf

NATIONAL ENVIRONMENTAL TESTING, INC.

Dayton Division
3601 South Dixie Drive
Dayton, OH 45439
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Fax (937) 294-7816

ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98.06469

SAMPLE NO.: 467068

Sample Description: Water Phase
Client Project ID: Dayton Thermal Building 40B

Date Taken. 04/21/1998 Date Received· 04/22/1998

VOLATILE COMPOUNDS - 8260

Parameter	Result	Unit	Date Anal.	Analyst
1,1,2-Trichloroethane	<10	ug/L	04/23/1998	jpf
Trichloroethene	52 1	ug/L	04/23/1998	jpf
Trichlorofluoromethane	<10	ug/L	04/23/1998	jpf
1,2,3-Trichloropropane	<10	ug/L	04/23/1998	jpf
1,2,4-Trimethylbenzene	20 3	ug/L	04/23/1998	jpf
1,2,3-Trichlorobenzene	<10	ug/L	04/23/1998	jpf
Vinyl Acetate	<10	ug/L	04/23/1998	jpf
Vinyl Chloride	<4	ug/L	04/23/1998	jpf
Xylenes	<10	ug/L	04/23/1998	jpf
Surrogate:Dibromofluoromethane	103	%	04/23/1998	jpf
Surrogate Toluene-d8	98	%	04/23/1998	jpf
Surrogate·Bromofluorobenzene	92	%	04/23/1998	jpf

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Dayton Division
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ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98.06469

SAMPLE NO.: 467068

Sample Description: Water Phase
Client Project ID Dayton Thermal Building 40B

Date Taken 04/21/1998 Date Received: 04/22/1998

BASE NEUTRAL COMPOUNDS - 8270

Parameter	Result	Unit	Date Anal.	Analyst
Acenaphthene	<100	ug/L	04/25/1998	dal
Acenaphthylene	<100	ug/L	04/25/1998	dal
Anthracene	<100	ug/L	04/25/1998	dal
Benzo(a)anthracene	<100	ug/L	04/25/1998	dal
Benzo(b)fluoranthene	<100	ug/L	04/25/1998	dal
Benzo(k)fluoranthene	<100	ug/L	04/25/1998	dal
Benzo(a)pyrene	<100	ug/L	04/25/1998	dal
Benzo(ghi)perylene	<100	ug/L	04/25/1998	dal
Benzyl alcohol	<100	ug/L	04/25/1998	dal
Benzyl butyl phthalate	<100	ug/L	04/25/1998	dal
bis(2-Chloroethyl)ether	<100	ug/L	04/25/1998	dal
bis(2-Chloroethoxy)methane	<100	ug/L	04/25/1998	dal
bis(2-Ethylhexyl)phthalate	<100	ug/L	04/25/1998	dal
bis(2-Chloroisopropyl)ether	<100	ug/L	04/25/1998	dal
4-Bromophenyl phenyl ether	<100	ug/L	04/25/1998	dal
4-Chloroaniline	<100	ug/L	04/25/1998	dal
2-Chloronaphthalene	<100	ug/L	04/25/1998	dal
4-Chlorophenylphenyl ether	<100	ug/L	04/25/1998	dal
Chrysene	<100	ug/L	04/25/1998	dal
Dibenzo(a,h)anthracene	<100	ug/L	04/25/1998	dal
Dibenzofuran	<100	ug/L	04/25/1998	dal
Di-n-butylphthalate	<100	ug/L	04/25/1998	dal
1,2-Dichlorobenzene	<100	ug/L	04/25/1998	dal
1,3-Dichlorobenzene	<100	ug/L	04/25/1998	dal
1,4-Dichlorobenzene	<100	ug/L	04/25/1998	dal
3,3'-Dichlorobenzidine	<500	ug/L	04/25/1998	dal
Diethyl phthalate	<100	ug/L	04/25/1998	dal
Dimethyl phthalate	<100	ug/L	04/25/1998	dal
2,4-Dinitrotoluene	<100	ug/L	04/25/1998	dal
2,6-Dinitrotoluene	<100	ug/L	04/25/1998	dal
Di-n-octylphthalate	<100	ug/L	04/25/1998	dal
Fluoranthene	<100	ug/L	04/25/1998	dal
Fluorene	<100	ug/L	04/25/1998	dal

NATIONAL ENVIRONMENTAL TESTING, INC.

Dayton Division
3601 South Dixie Drive
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ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98.06469

SAMPLE NO.: 46'068

Sample Description: Water Phase
Client Project ID: Dayton Thermal Building 40B

Date Taken: 04/21/1998 Date Received. 04/22/1998

BASE NEUTRAL COMPOUNDS - 8270

Parameter	Result	Unit	Date Anal.	Analyst
Hexachlorobenzene	<100	ug/L	04/25/1998	dal
Hexachloro-1,3-butadiene	<100	ug/L	04/25/1998	dal
Hexachlorocyclopentadiene	<200	ug/L	04/25/1998	dal
Hexachloroethane	<100	ug/L	04/25/1998	dal
Indeno(1,2,3-cd)pyrene	<100	ug/L	04/25/1998	dal
Isophorone	<100	ug/L	04/25/1998	dal
Naphthalene	<100	ug/L	04/25/1998	dal
Nitrobenzene	<100	ug/L	04/25/1998	dal
N-Nitrosodi-n-propylamine	<100	ug/L	04/25/1998	dal
Phenanthrene	<100	ug/L	04/25/1998	dal
Pyrene	<100	ug/L	04/25/1998	dal
1,2,4-Trichlorobenzene	<100	ug/L	04/25/1998	dal
Surrogate: d5-Nitrobenzene	69	%	04/25/1998	dal
Surrogate: 2-Fluorobiphenyl	65	%	04/25/1998	dal
Surrogate: d14-Terphenyl	63	%	04/25/1998	dal

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ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98.06469

SAMPLE NO : 467068

Sample Description: Water Phase
Client Project ID: Dayton Thermal Building 40B

Date Taken: 04/21/1998

Date Received: 04/22/1998

ACID COMPOUNDS - 8270

Parameter	Result	Unit	Date Anal.	Analyst
Benzoic acid	<500	ug/L	04/25/1998	dal
4-Chloro-3-methylphenol	<100	ug/L	04/25/1998	dal
2-Chlorophenol	<100	ug/L	04/25/1998	dal
2,4-Dichlorophenol	<100	ug/L	04/25/1998	dal
2,4-Dimethylphenol	<100	ug/L	04/25/1998	dal
2,4-Dinitrophenol	<100	ug/L	04/25/1998	dal
2-Methyl-4,6-dinitrophenol	<100	ug/L	04/25/1998	dal
2-Methylphenol	<100	ug/L	04/25/1998	dal
meta & para-Methylphenol	<100	ug/L	04/25/1998	dal
2-Nitrophenol	<100	ug/L	04/25/1998	dal
4-Nitrophenol	<100	ug/L	04/25/1998	dal
Pentachlorophenol	<100	ug/L	04/25/1998	dal
Phenol	<100	ug/L	04/25/1998	dal
2,4,5-Trichlorophenol	<100	ug/L	04/25/1998	dal
2,4,6-Trichlorophenol	<100	ug/L	04/25/1998	dal
Surrogate: d6-Phenol	52	%	04/25/1998	dal
Surrogate. 2-Fluorophenol	49	%	04/25/1998	dal
Surrogate: Tribromophenol	76	%	04/25/1998	dal

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ANALYTICAL REPORT

Joe Whitlock
CHRYSLER (ACCUSTAR)
1600 Webster Street
Dayton, OH 45404

04/28/1998

JOB NUMBER: 98.06469

SAMPLE NO.: 467068

Sample Description: Water Phase
Client Project ID: Dayton Thermal Building 40B

Date Taken: 04/21/1998

Date Received: 04/22/1998

PESTICIDES/PCB'S - 8080

Parameter	Result	Unit	Date Anal.	Analyst
Aldrin	<2.2	ug/L	04/26/1998	jdc
alpha-BHC	<2.2	ug/L	04/26/1998	jdc
beta-BHC	<2 2	ug/L	04/26/1998	jdc
gamma-BHC (Lindane)	<2 2	ug/L	04/26/1998	jdc
delta-BHC	<2.2	ug/L	04/26/1998	jdc
Chlordane	<2.2	ug/L	04/26/1998	jdc
4,4'-DDD	<2 2	ug/L	04/26/1998	jdc
4,4'-DDE	<2.2	ug/L	04/26/1998	jdc
4,4'-DDT	<2.2	ug/L	04/26/1998	jdc
Dieldrin	<2.2	ug/L	04/26/1998	jdc
Endosulfan I	<2.2	ug/L	04/26/1998	jdc
Endosulfan II	<2.2	ug/L	04/26/1998	jdc
Endosulfan Sulfate	<2.2	ug/L	04/26/1998	jdc
Endrin	<2.2	ug/L	04/26/1998	jdc
Endrin Aldehyde	<2.2	ug/L	04/26/1998	jdc
Heptachlor	<2.2	ug/L	04/26/1998	jdc
Heptachlor Epoxide	<2.2	ug/L	04/26/1998	jdc
Methoxychlor	<2.2	ug/L	04/26/1998	jdc
Toxaphene	<5.4	ug/L	04/26/1998	jdc
Aroclor 1016	<2.2	ug/L	04/26/1998	jdc
Aroclor 1221	<2 2	ug/L	04/26/1998	jdc
Aroclor 1232	<2 2	ug/L	04/26/1998	jdc
Aroclor 1242	<2 2	ug/L	04/26/1998	jdc
Aroclor 1248	<2 2	ug/L	04/26/1998	jdc
Aroclor 1254	<2 2	ug/L	04/26/1998	jdc
Aroclor 1260	<2.2	ug/L	04/26/1998	jdc
Surrogate	48	%	04/26/1998	jdc

NATIONAL ENVIRONMENTAL TESTING, INC.

Dayton Division
3601 South Dixie Drive
Dayton, OH 45439
Tel (937) 294-6856
Fax (937) 294-7816

NOTES AND COMMENTS

NET Job Number: 98.06469

Sample Number 467067

Analysis: BNA

The recoveries for d12-Chrysene and d12-Perylene internal standards are below the recommended acceptance limits. No target analytes are affected.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

Dayton Division
3601 South Dixie Drive
Dayton OH 45439
Tel (513) 294 6856
Fax (513) 294-7816

NOTES AND COMMENTS

Sub-Contracted Analysis:

Please be advised that analytical results with the analysts initials of, sub, were not performed by the Dayton Division, and were performed by a sub-contracted laboratory.

Should you have any questions, please contact your Project Coordinator.

NET NATIONAL ENVIRONMENTAL TESTING, INC

CHAIN OF CUSTODY RECORD

COMPANY: Leggette Brashears & Graham, Inc
ADDRESS: 1210 West County Rd E
PHONE: (612) 490-1405 FAX: (612) 490-1006
PROJECT NAME/LOCATION: Dayton Chrysler ... 4CP
PROJECT NUMBER: 3CHRY4 / DAYTON
PROJECT MANAGER: Ken Vogel

Joe Whitlock, Chrysler
REPORT TO: Ken Vogel LBG
INVOICE TO: Ken Vogel
PO NO: 3CHRY4 / DAYTON
NET QUOTE NO:

SAMPLED BY: Michael Bratrud (PRINT NAME) SIGNATURE: Michael Bratrud
(PRINT NAME) SIGNATURE

To assist us in selecting the proper method
Is this work being conducted for regulatory compliance monitoring? Yes ___ No ___
Is this work being conducted for regulatory enforcement action? Yes ___ No ___
Which regulations apply: RCRA ___ NPDES Wastewater ___ UST ___ Drinking Water ___ Other ___ None ___

ANALYSES: VOC's | SVOC's | Metals | Pest/PCBs | 8 RCRA Metals* | TPH Diesel | pH | Flash | Cyanide | Hexavalent Chromium | ...

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	HCl	NaOH	HNO3	H2SO4	Other	VOC's	SVOC's	Metals	Pest/PCBs	8 RCRA Metals*	TPH Diesel	pH					COMMENTS
4/21/98	4 17	Oil/Water 12" Pipe	W	X						X	X	X	X	X	X	X	-					* Including Hexavalent Chromium
		for Joe Whitlock 4/21																				
		Oil Phase									X	X		X	X				X			NOTE: Hold for possible TCLP
		Water Phase									X	X		X	X			X	X	X	X	analysis

Analyses per J. Whitlock 4/21
24 Hour TAT!
... Indy
Lab due 4/27
Client due 4/27

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO FIELD FILTERED? YES / NO
COC SEALS PRESENT AND INTACT? YES / NO VOLATILES FREE OF HEADSPACE? YES / NO
TEMPERATURE UPON RECEIPT ___ Bottles supplied by NET? YES / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA ___
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS ___ DATE ___

RELINQUISHED BY	DATE	TIME	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED FOR LAB BY
M Bratrud	4/21/98	4:20	Robert J Ewick		4/21	16:40	[signature]

METHOD OF SHIPMENT:
REMARKS: Notify Joe Whitlock Chrysler ASAP (937) 224-2467, Fax (937) 224-2915

COPY ORIGINAL WHITE P1 2 NET PROJECT MANAGER YELLOW P1 3 CUSTOMER COPY PINK

LEGGETTE, BRASHEARS & GRAHAM, INC.

PROFESSIONAL GROUND-WATER
AND ENVIRONMENTAL ENGINEERING SERVICES

1210 WEST COUNTY ROAD E
SAINT PAUL, MN 55112

(612) 490-1405 FAX (612) 490-1006

DATE: 4/28/98 **PAGES:** (Includes cover page)

TO: Gary Stanczuk **FAX #:** (248) 576-7369

COMPANY: Chrysler Corp.

TO: **FAX #:**

COMPANY:

TO: **FAX #:**

COMPANY:

FROM: Ken Vogel

RE: Analytical Results from East & West Pits plus liquid from sewer line.

Please contact Kathleen Weinrich (612) 490-1405 if transmission is incomplete or can not be read.

fax TRANSMITTAL

LEGGETTE, BRASHEARS & GRAHAM, INC.

PROFESSIONAL GROUND-WATER
AND ENVIRONMENTAL ENGINEERING SERVICES

1210 WEST COUNTY ROAD E
SAINT PAUL, MN 55112

(612) 490-1405 FAX (612) 490-1006

DATE: 4/28/98 **PAGES:** 12
(Includes cover page)

TO: Mike Randazzo **FAX #:** (810) 468-9589

COMPANY: Carlo

TO: **FAX #:**

COMPANY:

TO: **FAX #:**

COMPANY:

FROM: Ken Vogel

RE: Analytical Results - East & West Pit Composite Samples
Note: These are total results, NOT TCLP (typically 20x less than total)
Please call w/ any questions.

Ken

Please contact Kathleen Weinrich (612) 490-1405 if transmission is incomplete or can not be read.

fax TRANSMITTAL

CALLED BRITT ON 8/22/00 AT 4:45 PM - TOLD HIM RESULTS WERE OIL TO FOLLOWUP TO CITY MIKE

1600 Webster Street
Dayton Ohio 45401
Fax 937 224-2915

DaimlerChrysler Corpor
Dayton Thermal Products
Component Operations

Fax

To:	Gary STANCZUK	**From:**	Britton W. Crider
Fax:	248-576-7369	**Pages:**	11 + Cover Sheet
Phone:	248-576-7365	**Date:**	08/18/00
Re:		**CC:**	

☐ Urgent ☒ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

• **Comments:** These are the LAB Results For the 8/8/-00 incident associated with City of Dayton Call on oil in Retention Basin at Lucille Ste. On 8/8/00 - We Responded to the Call - Have Never Acknowledged That it came From This Plant - City Declined to Take Samples From Any of our Storm Drains -

This is ATTORNEY/client Confidential and Privileged Communication

CITY OF DAYTON - WANTS TO KNOW IF We Found ANYTHING - GAVE THEM SAME ANSWER "We didn't See ANYTHING - AWAITING LAB REPORT.

TestAmerica
INCORPORATED

FAX TRANSMISSION NOTICE

Date: 8/18/00

Time: _____

To: Br. Hon Crider

Company: Dayton Thermal Systems

Sender: Ken Hunt

You should receive 13 **pages, including this notice. If you do not receive all pages, please call the sender immediately.**

Comments: Corrected Reports & Chromatograms for 6d4dd5.

Ken

3601 SOUTH DIXIE DRIVE / DAYTON, OH 45439 / 937-294-6856 / FAX 937-294-7816

TestAmerica
INCORPORATED

ANALYTICAL REPORT

Britton Crider
DAYTON THERMAL SYSTEMS
1600 Webster Street
Dayton, OH 45404

08/16/2000

Job Number: 00.14174

Enclosed is the analytical report for the following samples submitted to the Dayton Division of TestAmerica, Inc. for analysis:

Sample Number	Sample Description	Date Taken	Date Received
624224	SB Storm Sewer	08/08/2000	08/09/2000

TestAmerica, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

Reproduction of this analytical report is permitted only in its entirety.

Enclosure

Approved By

3601 S. Dixie Drive / Dayton, Ohio 45439 / 937-294-6856 / Fax 937-294-7816 / 800-572-9839

TestAmerica
INCORPORATED

ANALYTICAL REPORT

Britton Crider
DAYTON THERMAL SYSTEMS
1600 Webster Street
Dayton, OH 45404

08/16/2000

Job Number: 00.14174

Client Project ID: Storm Water

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 624224	SAMPLE DESCRIPTION SE Storm Sewer							DATE-TIME TAKEN 08/08/2000	
ICPMS TOTAL METALS	Complete			Complete	08/15/2000	ekh		1748	EPA 200 8
Cadmium, ICPMS	0.0014		mg/L	<0 0010	08/15/2000	ekh	1433	2550	EPA 200.8
Chromium, ICPMS	0.0048		mg/L	<0 0020	08/15/2000	ekh	1433	2707	EPA 200.8
Copper, ICPMS	0.0448		mg/L	<0 0050	08/15/2000	ekh	1433	2742	EPA 200 8
Lead, ICPMS	0.159		mg/L	<0 0010	08/15/2000	ekh	1433	2628	EPA 200.8
Mercury, CVAA	<0.0002	S5	mg/L	<0 0002	08/11/2000	ssc	1030	985	EPA 245.1
Molybdenum, ICPMS	0.123		mg/L	<0 0010	08/15/2000	ekh	1433	2909	EPA 200.8
Nickel, ICPMS	0.0056		mg/L	<0 0050	08/15/2000	ekh	1433	2700	EPA 200.8
Silver, ICPMS	0.0007		mg/L	<0.0005	08/15/2000	ekh	1433	2802	EPA 200.8
Zinc, ICPMS	1.03		mg/L	<0 050	08/15/2000	ekh	1433	2667	EPA 200.8
Digestion, ICPMS	Complete			Complete	08/11/2000	clm	1433		EPA 200 2
Manual Mercury Digestion	Complete			Complete	08/11/2000	clm	1030		EPA 245.1

TestAmerica
INCORPORATED

QUALITY CONTROL FLAG DEFINITIONS

Job Number: 00.14174

(*) Indicates an out-of-control QC. The analytical data was reported based on other supporting quality control information.

(MS) Indicates that the Matrix Spike (MS) was out of statistical advisory limits.

(MSD) Indicates that the Matrix Spike Duplicate (MSD) was out of statistical advisory limits.

(RPD) Indicates that the Relative Percent Difference (RPD) for the MS/MSD pair was outside of statistical advisory limits.

(SS) Indicates that the MS and MSD were out of statistical advisory limits.

(SSR) Indicates that the MS, MSD and RPD were out of statistical advisory limits.

(MSR) Indicates that the MS and RPD were out of statistical advisory limits.

(MSDR) Indicates that the MSD and RPD were out of statistical advisory limits.

(DL) Indicates that the MS and MSD were diluted out and the percent recoveries of the spikes could not be calculated.

(LS) Indicates that statistical accuracy and precision data is not available for spike concentrations which are < 1/4 of the sample amount. Care should be used in interpreting this data.

(J) Indicates estimated concentration due to internal standard areas or surrogate recoveries outside of control limits. A sample matrix effect is usually indicated.

(DW) Indicates Dry Weight.

Analytical Reporting Limits

The reporting limits listed for non-aqueous samples in the analytical report section are Practical Quantitation Limits (PQLs). These PQLs are based upon a typical standard weight used for a non-aqueous sample. The reporting limit for a sample may be different from the PQL listed depending upon the actual weight of sample used, the samples moisture content and any dilutions used during the analysis.

TestAmerica
INCORPORATED

ANALYTICAL REPORT

Britton Crider
DAYTON THERMAL SYSTEMS
1600 Webster Street
Dayton, OH 45404

08/16/2000

Job Number: 00.14174

Enclosed is the analytical report for the following samples submitted to the Dayton Division of TestAmerica, Inc. for analysis:

Sample Number	Sample Description	Date Taken	Date Received
624223	Luc.Station-Oil Layer	08/08/2000	08/09/2000

TestAmerica, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

Reproduction of this analytical report is permitted only in its entirety.

Enclosure

Approved By

TestAmerica
INCORPORATED

ANALYTICAL REPORT

Britton Crider
DAYTON THERMAL SYSTEMS
1600 Webster Street
Dayton, OH 45404

08/16/2000

Job Number: 00.14174

Client Project ID: Storm Water

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No	Run Batch No.	Method Reference
SAMPLE NO. 624223	**SAMPLE DESCRIPTION Luc.Station-Oil Layer**							**DATE-TIME TAKEN 08/08/2000**	
Arsenic, GFAA	<0.050		mg/Kg	<0.17	08/14/2000	lnh	457	425	SW 7060A
Barium, ICP	<0 20		mg/Kg	<0.20	08/14/2000	rrs	681	2224	SW 6010A
Cadmium, ICP	<0.30		mg/Kg	<0.30	08/14/2000	rrs	681	2209	SW 6010A
Chromium, ICP	<0 39		mg/Kg	<0 39	08/14/2000	rrs	681	2199	SW 6010A
Lead, ICP	<0.79		mg/Kg	<0.79	08/14/2000	rrs	681	2201	SW 6010A
Mercury,CVAA	<0 008		mg/Kg	<0.010	08/14/2000	epk	495	506	SW 7471A
Selenium, GFAA	<0.050		mg/Kg	<0 17	08/14/2000	lnh	457	424	SW 7740
Silver, ICP	<0.39		mg/Kg	<0.39	08/14/2000	rrs	681	2226	SW 6010A
ICP Digestion, Nonaqueous	Complete			Complete	08/11/2000	clm	681		SW 3050A
GFAA Digestion, Nonaqueous	Complete			Complete	08/11/2000	clm	457		SW 3050A
Mercury Digestion, Non-Aq	Complete			Complete	08/11/2000	clm	495		SW 7471A
Prep, PCBs Non-Aq 8082	Complete			Complete	08/10/2000	csp	20		SW 8082
VOLATILE COMPOUNDS-8260 Non-Aq									
8260 - SW846 (Non-aq)	Complete				08/14/2000	mrh		802	
Acetone	<840		ug/Kg	<840	08/14/2000	mrh		802	SW 8260A
Benzene	<42		ug/Kg	<42	08/14/2000	mrh		802	SW 8260A
tert-Butylbenzene	<42		ug/Kg	<42	08/14/2000	mrh		802	SW 8260A
sec-Butylbenzene	<42		ug/Kg	<42	08/14/2000	mrh		802	SW 8260A
n-Butylbenzene	<42		ug/Kg	<42	08/14/2000	mrh		802	SW 8260A
Bromochloromethane	<42		ug/Kg	<42	08/14/2000	mrh		802	SW 8260A
Bromodichloromethane	<42		ug/Kg	<42	08/14/2000	mrh		802	SW 8260A
Bromoform	<42		ug/Kg	<42	08/14/2000	mrh		802	SW 8260A
Bromobenzene	<42		ug/Kg	<42	08/14/2000	mrh		802	SW 8260A
2-Butanone (MEK)	<840		ug/Kg	<840	08/14/2000	mrh		802	SW 8260A
Carbon disulfide	<42		ug/Kg	<42	08/14/2000	mrh		802	SW 8260A

TestAmerica
INCORPORATED

ANALYTICAL REPORT

Britton Crider
DAYTON THERMAL SYSTEMS
1600 Webster Street
Dayton, OH 45404

08/16/2000

Job Number: 00.14174

Client Project ID: Storm Water

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No	Run Batch No	Method Reference
SAMPLE NO. 624223	SAMPLE DESCRIPTION Luc.Station-Oil Layer						DATE-TIME TAKEN 08/08/2000		
Carbon tetrachloride	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
Chlorobenzene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
Chloroethane	<84		ug/Kg	<84	08/14/2000	mrh	802		SW 8260A
2-Chlorotoluene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
4-Chlorotoluene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
Chloroform	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
Chloromethane	<84		ug/Kg	<84	08/14/2000	mrh	802		SW 8260A
Dibromochloromethane	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
Dibromoethane	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
Dichlorodifluoromethane	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
1,2-Dibrom-3-chloropropane	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
1,2-Dichlorobenzene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
1,3-Dichlorobenzene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
1,4-Dichlorobenzene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
1,1-Dichloroethane	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
1,2-Dichloroethane	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
1,1-Dichloroethene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
cis-1,2-Dichloroethene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
trans-1,2-Dichloroethene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
1,2-Dichloropropane	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
1,3-Dichloropropane	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
2,2-Dichloropropane	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
1,1-Dichloropropene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
cis-1,3-Dichloropropene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
trans-1,3-Dichloropropene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A
Ethylbenzene	<62		ug/Kg	<62	08/14/2000	mrh	802		SW 8260A

TestAmerica INCORPORATED

ANALYTICAL REPORT

Britton Crider
DAYTON THERMAL SYSTEMS
1600 Webster Street
Dayton, OH 45404

08/16/2000

Job Number: 00.14174

Client Project ID: Storm Water

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 624223	**SAMPLE DESCRIPTION Luc.Station-Oil Layer**							**DATE-TIME TAKEN 08/08/2000**	
Hexachlorobutadiene	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
n-Hexane	<84		ug/Kg	<84	08/14/2000	mrh	802		SW 8260A
2-Hexanone	<420		ug/Kg	<420	08/14/2000	mrh	802		SW 8260A
Isopropylbenzene (Cumene)	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
p-Isopropyltoluene	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
Bromomethane	<84		ug/Kg	<84	08/14/2000	mrh	802		SW 8260A
Methylene Chloride	<84		ug/Kg	<84	08/14/2000	mrh	802		SW 8260A
4-Methyl-2-pentanone (MIBK)	<420		ug/Kg	<420	08/14/2000	mrh	802		SW 8260A
n-Propylbenzene	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
Styrene	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
Naphthalene	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
1,1,1,2-Tetrachloroethane	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
1,1,2,2-Tetrachloroethane	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
Tetrachloroethene	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
Toluene	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
1,2,4-Trichlorobenzene	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
1,1,1-Trichloroethane	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
1,1,2-Trichloroethane	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
Trichloroethene	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
Trichlorofluoromethane	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
1,2,3-Trichloropropane	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
1,2,4-Trimethylbenzene	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
1,3,5-Trimethylbenzene	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
Vinyl Acetate	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A
Vinyl Chloride	<17		ug/Kg	<17	08/14/2000	mrh	802		SW 8260A
Xylenes	<42		ug/Kg	<42	08/14/2000	mrh	802		SW 8260A

TestAmerica
INCORPORATED

ANALYTICAL REPORT

Britton Crider
DAYTON THERMAL SYSTEMS
1600 Webster Street
Dayton, OH 45404

08/16/2000

Job Number: 00.14174

Client Project ID: Storm Water

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No	Method Reference
SAMPLE NO. 624223	SAMPLE DESCRIPTION Luc.Station-Oil Layer							DATE-TIME TAKEN 08/08/2000	
Surrogate:Dibromofluoromethane	97		%		08/14/2000	mrh		802	SW 8260A
Surrogate:Toluene-d8	96		%		08/14/2000	mrh		802	SW 8260A
Surrogate:Bromofluorobenzene	88		%		08/14/2000	mrh		802	SW 8260A
PCB's N 8082, Non-Aq									
Aroclor 1016	<5.0		mg/Kg	<0.50	08/10/2000	jdc	20	36	SW 8082
Aroclor 1221	<5.0		mg/Kg	<0.50	08/10/2000	jdc	20	36	SW 8082
Aroclor 1232	<5.0		mg/Kg	<0.50	08/10/2000	jdc	20	36	SW 8082
Aroclor 1242	<5 0		mg/Kg	<0.50	08/10/2000	jdc	20	36	SW 8082
Aroclor 1248	<5.0		mg/Kg	<0.50	08/10/2000	jdc	20	36	SW 8082
Aroclor 1254	<5.0		mg/Kg	<0.50	08/10/2000	jdc	20	36	SW 8082
Aroclor 1260	<5 0		mg/Kg	<0.50	08/10/2000	jdc	20	36	SW 8082
Surrogate:TCX/DCB	107/50.2		%		08/10/2000	jdc	20	36	SW 8082

TestAmerica
INCORPORATED

QUALITY CONTROL FLAG DEFINITIONS

Job Number: 00.14174

(*) Indicates an out-of-control QC. The analytical data was reported based on other supporting quality control information.

(MS) Indicates that the Matrix Spike (MS) was out of statistical advisory limits.

(MSD) Indicates that the Matrix Spike Duplicate (MSD) was out of statistical advisory limits.

(RPD) Indicates that the Relative Percent Difference (RPD) for the MS/MSD pair was outside of statistical advisory limits.

(SS) Indicates that the MS and MSD were out of statistical advisory limits.

(SSR) Indicates that the MS, MSD and RPD were out of statistical advisory limits.

(MSR) Indicates that the MS and RPD were out of statistical advisory limits.

(MSDR) Indicates that the MSD and RPD were out of statistical advisory limits.

(DL) Indicates that the MS and MSD were diluted out and the percent recoveries of the spikes could not be calculated.

(LS) Indicates that statistical accuracy and precision data is not available for spike concentrations which are < 1/4 of the sample amount. Care should be used in interpreting this data.

(J) Indicates estimated concentration due to internal standard areas or surrogate recoveries outside of control limits. A sample matrix effect is usually indicated.

(DW) Indicates Dry Weight.

Analytical Reporting Limits

The reporting limits listed for non-aqueous samples in the analytical report section are Practical Quantitation Limits (PQLs). These PQLs are based upon a typical standard weight used for a non-aqueous sample. The reporting limit for a sample may be different from the PQL listed depending upon the actual weight of sample used, the samples moisture content and any dilutions used during the analysis.

14174/14175

P.11 937 294 7816

PAGE.11 937 294 7816

TestAmerica
INCORPORATED

Dayton Division
3601 S. Dixie Drive
Dayton, OH 45439

Phone: 937-294-6856
Fax: 937-294-7816

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring ________

Client Name: CHRYSLER Client #: ________
Address: 1600 WEBSTER ST
City/State/Zip Code: DAYTON OHIO 45404
Project Manager: Britton W. Crider
Telephone Number: (937) 224-2467 Fax: ________
Sampler Name (Print Name): Britton W Crider
Sampler Signature: Britton W. Crider

Project Name: STORM WATER
Project #: ________
Site/Location ID: ________ State: ________
Report To: ________
Invoice To: ________
Quote #: ________ PO#: ________

TAT
___ Standard
___ Rush (surcharges may apply)
Date Needed: ________
Fax Results: Y N

QC Deliverables
___ None
___ Level 2 (Batch QC)
___ Level 3
___ Level 4
Other ________

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix (SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other)	HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	PCB'S 8082	METALS	VOC'S 8260	REMARKS
LUC. STATION													✓	✓	✓	Oily water
																Analyze oil only
																Rec'd in plastic
Storm Sewer														✓		proceed
#1A	8/8	1700	G	No	ML								✓	✓	✓	See instructions
																oil sample

Special Instructions: TCLP minus PCB. Oil w/ #1A on separate Job
do VOC's on #1A + Luc. Station if possible

Relinquished By	Date	Time	Received By	Date	Time
Relinquished By: Britton Crider	08/9/00	4:07 pm	Received By: Robi [illegible]	8/9/00	1607
Relinquished By:	Date:	Time:	Received By:	Date	Time:
Relinquished By	Date:	Time	Received By	Date	Time

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp:
Custody Seals: Y N N/A
Bottles Supplied by TestAmerica: Y N
Method of Shipment:

Amd. 8/4 [illegible] 8/11/00

AUG-18-2000 10:09

** TOTAL PAGE 12 **

DaimlerChrysler

Site Remediation

Fax Cover

Date: 8-17-00

To: Mike Webb **Fax #:** 937-237-1850

Company: Onyx

From: Gary Stanczuk **Phone:** 248-576-7365

Fax: 248-576-7369

The Dayton plant management has requested that the frac tank remaining on site from the sewer cleaning project be removed Per our contract, please arrange for the proper sampling and disposal of the waste in the tanks (including proper characterization, analysis, and transportation) as soon as possible, and in compliance with all regulatory requirements If you have any questions please contact me Also please provide me with timing for frac tank removal and completion of the sewer-cleaning project

Also included with this fax is the PCB Closure Work Plan With this work plan please complete the sewer-cleaning project Thanks Gary

C Mark Autio
Greg Rose
Mike Curry

PCB Closure Work Plan
Dayton Thermal Products
Dayton, Ohio

Introduction

This work plan is intended to initiate closure of the PCB issue at the Dayton Thermal Products (DTP) plant and to identify the steps that DaimlerChrysler will take to clean inactive sewer lines beneath the plant to eliminate the potential for post-closure releases of PCBs.

During initial cleaning of inactive sewer lines, unanticipated PCBs were detected in some rinsate waters Review of the distribution of PCB detections indicates that their occurrence is associated with plant production areas where use of lubricating and/or hydraulic oils has been observed Residual oils/sludges may have been trapped in inactive sewer lines, not mobilizing until sewer cleaning activities PCBs have been detected in the liquid, sludges, free phase product, and rinse waters from the sewer lines, and an oil/water separator associated with Buildings 40, 40A and 50 The predominant PCB that has been detected is Aroclor 1254 with only trace amounts of Aroclor 1260.

Cleanup Methodology, Sewer Lines

Sewer lines and sumps/separators will be cleaned with a high-pressure water jet with rinse waters collected by a vacuum truck In locations where the sewer line is not accessible by a manhole or floor drain, a sawcut will be made through the concrete to expose the sewer line The sewer lines will then be cut and cleaned with high-pressure water After cleaning, the sewer line will be abandoned and later backfilled and capped with concrete to match the existing floor grade All liquids removed will be placed in frac tanks, properly labeled, and analyzed for PCBs via EPA Method 8082 for proper disposal. At a minimum, sewer lines with PCB detections will be triple rinsed and resampled Final rinsate samples will be collected and analyzed for PCBs. Rinsing will continue until PCB concentrations in rinsate waters are less than the cleanup goal of 2 ppm.

Cleanup Methodology, Separator

The oil/water separator at the southwest corner of Building 50 will be power-washed and triple rinsed. All liquids removed will be placed in frac tanks, properly labeled, and analyzed for PCBs via EPA Method 8082 for proper disposal Any flow (process or otherwise) from Building 50 that leads to this

separator will be rerouted prior to final cleaning of the separator and sewer lines in Building 50. If free-product from the Building 50 oil/water separator contains PCBs with concentrations greater than 50 ppm the PCB bulk waste will be removed and incinerated at a permitted PCB waste disposal facility.

Since the walls of the separator were uniformly exposed to any potential PCBs two (2) concrete core samples will be sufficient to determine any PCB impacts One sample would be collected from the upper half of one separator wall (oil leg) and the other sample would be collected from the bottom half of the opposite wall (water leg) The separator will also be visually inspected for cracks, seams, staining, residual material, and overall structural integrity No further cleanup activities are warranted if the concentrations of PCBs in concrete are below the 1 ppm cleanup level

Abandonment

Sewer line and oil/water separator abandonment will begin following the adherence to the above mentioned cleanup standards. It is the intent of DaimlerChrysler to pump all cleaned, inactive sewer lines, and the separator at the southwest corner of Building 50, full of grout This will be done though existing manholes, floor drains and sawcuts Additional sawcuts may be needed to gain access to the sewer lines

DaimlerChrysler

FIELD ORDER

Field Order No ONYX - 4 | Issue Date 11-16-00

Job No | P O Number JYGC 805223

Project Name Grout Sewer Lines | Pant/Site Dayton Thermal

Bulletin No ONYX - 4 | Contractor's Name Onyx

THIS ORDER TO BE ISSUED FOR CHANGES ONLY

NORMAL SITUATION

(XX) Contractor is hereby authorized to proceed with the scope of work outlined in Construction Bulletin No ONYX - 4 If not already submitted, contractor must prepare a formal quotation in accordance with the General Condition for Construction Contracts

EMERGENCY

( ) Proceed at once with the following change in the scope of work This Field Order will be followed by a Construction Bulletin describing the work in detail Contractor must prepare a formal quotation within 14 days from issuance and in accordance with the General Conditions for Construction Contracts

Reason for Emergency Processing _____

DESCRIPTION

Grout the inactive sewer lines at the Dayton Thermal Plant so they will not be useable

Total estimated cost for this work is $ 7,179

Issuance of this Field Order does not indicate approval of a specified dollar amount to cover the scope of work performed The final cost of this Field Order will be shown on a Purchase Order Change, which will be issued only after submission by contractor of a formal quotation, which has been accepted and agreed to by Pollution Prevention and Remediation and Corporate Purchasing

Signature Remediation Specialist/Date

Signature Director - PP&R/Date

Signature Supervisor - Environmental Remediation/Date 11/20/00

Signature Financial Specialist/Date 11/20/00

Signature Senior Manager - Environmental Remediation/Date

Signature Environmental Financial Controller/Date

DaimlerChrysler

CONSTRUCTION BULLETIN

Bulletin No ONYX - 4 | Issue Date 11-10-00

Job No | P O Number JYGC 805223

Project Name Grout Sewer Lines | Plant/Site Dayton Thermal

Field Order No ONYX - 4 | Contractor's Name Onyx

THIS IS NOT AN ORDER

This is a request for quotation to furnish all labor, material & equipment required for the completion of the work described including all items incidental thereto or necessary to properly complete the work even through not specifically mentioned The original contract documents and/or specifications applicable shall apply to this bulletin unless otherwise mentioned

The Contractor shall submit within 14 calendar days his proposal for any change to the contract amount or time of completion as a result of the work described herein

The following drawings/specifications accompany this Bulletin

( ) Not Applicable

WORK DESCRIPTION: (To include location, shift overtime, and/or Special Conditions, etc)

Grout the inactive sewer lines at the Dayton Thermal Plant so they will not be useable

Address Reply to
DIAMLERCHRYSLER CORPORATION
PURCHASING DEPARTMENT

Signature Remediation Specialist/Date

(2) Copies to
POLLUTION PREVENTION AND REMEDIATION

Signature Supervisor - Environmental Remediation/Date

 - ONYX - fill 4 lines at chrysler xls

 - ONYX - Fill 4 lines and pit at Chrysler - Webb doc

Gary,

7.5% (Not 15%)

Here is the quote from Fryman-Kuck, the total cost with my mark up is ~~$7,840.70.~~

If you have any questions feel free to give me a call.

Thanks, Mike

$7178.85

Mike_Webb/ONYX-Industrial@onyx-industrial com on 11/14/2000 11 09 55 AM

To Deb Flatter <Deb@FRYMAN-KUCK com>
cc Gary Stanczuk <gms9@daimlerchrysler com>

Subject RE GROUT LINES

Mike Webb
Cell 937-603-2597
office 937-237-1097

Deb Flatter <Deb@FRYMAN-KUCK.com> on 11/14/2000 10 51:53 AM

To. Mike Webb/ONYX-Industrial@ONYX-Industrial
cc:
Fax to.
Subject RE GROUT LINES

MIKE,

SORRY, HERE IT IS AGAIN.

-----Original Message-----
From Mike_Webb/ONYX-Industrial@onyx-industrial com
[mailto.Mike_Webb/ONYX-Industrial@onyx-industrial com]
Sent Monday, November 13, 2000 8.50 AM
To Deb@fryman-kuck com
Subject

Deb

Here is my email address, when you get numbers for filling lines email then to
me so I can forward to Gary at D C Corp

Thanks, Mike

FRYMAN-KUCK GENERAL CONTRS., INC.

FACSIMILE TRANSMITTAL SHEET

TO	FROM
Mike Webb	Deb Flatter
COMPANY	DATE
Onyx Industrial	November 14, 2000
FAX NUMBER	TOTAL NO OF PAGES INCLUDING COVER
(937) 237-1850	1
PHONE NUMBER	SENDER'S REFERENCE NUMBER.
(937) 237-1097	
RE	YOUR REFERENCE NUMBER
Chrysler Grout Lines	

☐ URGENT ☑ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS

Mike,

We propose to furnish all labor, material, and equipment to fill one pit and four lines with 93 yards of grout at the Chrysler plant for the sum of $ 6,818 00 (Six Thousand Eight Hundred Eighteen Dollars)

Our price includes

- Installation of LSM50 grout
- Forklift to haul the grout into the plant

Our price does not include

- Work on overtime hours
- Removal or disposal of any hazardous materials
- Relocation of any Chrysler materials or equipment

If you have any further questions, please call

Very truly yours,

Deb Flatter
Project Manager

P.O. BOX 13655, 5150 WEBSTER ST., DAYTON, OHIO 45413
PHONE (937) 274-2892
FAX (937) 274-9485

FRYMAN-KUCK GENERAL CONTRACTORS, INC.

Job # EST
Customer ONYX
Desc FILL 4 LINES AT CHRYSLER
Proj Mgr DEB
PURCHASE ORDER #JPYC

Project Timeline
Eng Estimate
Liquid Damages

Bid Date NOW

Code #	Description	Quantity	Unit	LABOR U P	LABOR TOTAL	MATERIAL U P	MATERIAL TOTAL	SUBCONT U P	SUBCONT TOTAL	EQUIP U P	EQUIP TOTAL	TOTAL COST U P	TOTAL COST TOTAL
	GENERAL REQUIREMENTS												
	SUPERVISION & PROJECT MANAGEMENT	4	HRS	40	160								160
	MOBILIZATION AND DEMOBILIZATION	2	HRS	35	70					35	70		140
	TEMP TOILET		DAYS										
	SITE LAYOUT & FIELD MEASURING		HRS	35									
	CLEAN UP	1	HRS	35	35								35
	SMALL TOOLS												
	TRUCK FUEL	1	DAYS							20	20		20
	GROUT LINES - MATERIAL LSM 50 GROUT	93	YDS			49 5	4,604						4,604
	LABOR - HAUL INTO PLANT AND FILL LINES	16	HRS	40	640								640
	EQUIPMENT - FORKLIFT AND HOPPER	8	HRS							20	160		160
	SUBTOTAL OF F-K WORK				905		4,604				250		5,759
	PLUS 12 5% MARKUP				113		575				31		720
	SALES TAX						322				18		340
	TOTAL OF F-K WORK				1,018		5,501				299		6,818
	SUBCONTRACTORS												
	SUBTOTAL OF SUBCONTRACOTRS												
	7 5% MARK UP												
	TOTAL OF SUBCONTRACTORS INCL MARKUP												
	TOTAL PRICE												**6,818**

6678

ONYX INDUSTRIAL SERVICES, INC.

ONYX

TO GARY STANCZUK

FROM MIKE WEBB

DATE 10/10/00

RE DISPOSAL OF DRUMS

GARY
THE LINE ITEM PRICING FOR DISPOSAL OF LIQUID DRUMS OF CHLORINATED SOLVENTS ARE AS FOLLOWES

DISPOSAL $145 00 PER DRUM
TRANSPORTATION ~~$62 50~~ 3 ——→ slip with others

LBG HAS GENERATED ~~4~~ 3 DRUMS FROM MONITORING WELLS SO THE PRICE WOULD BE ~~$642 50~~ $435 TO TRANSPORT AND DISPOSE OF THESE DRUMS

PLEASE REVIEW AND GIVE ME A CALL SO WE CAN SCHEDULE THESE DRUMS FOR DISPOSAL

THANK YOU
MIKE

$145 x 3 = $435

6151 Executive Blvd , Huber Heights, OH 45424 **(937) 237-1097 Fax (937) 237-1850 (937) 237-3669 (Accounting)**

ONYX INDUSTRIAL SERVICES INC.
FORMERLY WAST MNGMNT IND SERV
6151 EXECUTIV BLVD
HUBER HEIGHTS OH 45424

Remit t : ONYX INDUSTRIAL SERVICES INC.
P BOX 70610
CHICAG IL 60673-0610
****PAYMENTS ONLY****

Invoic t: CHR001
DAIMLERCHRYSLER CORP A/P
P BOX 537927
LIVONIA MI 48153-7927

48153
Ordered By:
P.O. # : JYGC805223A
Work Desc : CLEAN SEWER LINES

Invoic # : 175599
Invoic Dat: Aug31/2000
Onyx W.O. # : 992293
CONTRACT : JYGC805223A
RELEAS # :
LOCATION- : 5407 DAYTON
VENDOR : 59781
NET 30 DAY : TERMS

Dat	Ite #	Work Tkt	Description	Qty	Unit Pr	Amount
Jul25/2000	4000014	087502	13-200-0027	14.00	110.00	1,540.0
Jul25/2000	4000020	087502	DISPOSAL	14.00	560.00	7,840.0
Jul25/2000	4000022	087502	TRANSPORTIN	1.00	3,850.00	3,850.00
			Sub-total (Work Ticket: 087502)			13,230.00
			Invoic Total			13,230.00

ONYX Industrial Services, Inc.

ONYX INDUSTRIAL SERVICES, INC.
6151 EXECUTIVE BOULEVARD • DAYTON, OHIO 45424
PHONE 937 237 1097 • FAX 937 237 1850

TIME SHEET

RD 87502

DATE 7/25/00

99293 Project

CUSTOMER Daimler Chrysler ADDRESS

P.O. NO GATE PASS PHONE NO

OJ LJ RS LESS TOTAL HOURS

EQUIPMENT	EQUIP #	NO HOURS	RATE	AMOUNT
T				
D WASH TRUCK				
ATER BLASTER				
CTOR				
IRBO VAC				
NKER				
ACTOR				
MP TRUCK				
ASH PUMP				
MP TRAILER				
X TRAILER				
MERA UNIT				
B CAT				
CK HOE				
PPORT TRUCK				
EC MACHINE				
EAM CLEANER				
AC TANK				
LL OFF UNIT				
LL OFF BOX				
UM VAC				
COMPRESSOR				
NERATOR				
SPOSAL FEE		14	560.00	7840.00
E EQUIP				
SUPPORT				
WER DRUMMER				
MURRAGE CHARGE				
TA - HIGH				
EM RECIRC				
ansportation				3850.—
			# 1 SUBTOTAL ▶	

SUPPLIES	QUAN	RATE	AMOUNT
RUBBER GLOVES			
RAIN SUIT			
RESPIRATOR CART			
DUST MASKS			
TYVEK SUIT			
SARANEX SUIT			
CELL DRY			
FLOOR DRY			
MAXI SORB			
ABSORBENT PADS			
SPILL BOOMS			
PLASTIC (ROLL)			
DUCT TAPE			
ROLL OFF LINERS			
ACID SUIT			
EDF			
K-880			
DRUM LINERS			
DRUMS	14	110	1540.—
DISP BOOTS			
FORK LIFT			
# 2 SUBTOTAL ▶			

TECHNICIANS	EQUIP #	HOURS	RATE	AMOUNT

SUPERVISOR	VEH NO	HOURS	RATE	AMOUNT

MILEAGE		# 3 SUBTOTAL ▶	
MANIFEST NO			
TOTAL GALS		# 1 SUBTOTAL	
LOADING TIME	TO	# 2 SUBTOTAL	
UNLOADING TIME	TO	# 3 SUBTOTAL	
LOCATION & DESCRIPTION		TOTAL ▶	13,230.—

Haul 14 Drums of TSCA
Study to Port Author For disposal.
Study From Bldg 50 Separator
(Project

ONYX REPRESENTATIVE SIGNATURE

CUSTOMER SIGNATURE

ONYX INDUSTRIAL SERVICES INC.
FORMERLY WAST MNGMNT IND SERV
6151 EXECUTIV BLVD
HUBER HEIGHTS OH 45424

Remit t : ONYX INDUSTRIAL SERVICES INC
P BOX 70610
CHICAG IL 60673-0610
****PAYMENTS ONLY****

Invoic t: CHR001
DAIMLERCHRYSLER CORP A/P
P BOX 537927
LIVONIA MI 48153-7927

48153
Ordered By:
P.O. # : JYGC805223A
Work Desc : CLEAN SEWER LINES

Invoic # : 175906
Invoic Dat: Sep30/2000
Onyx W.O. # : 992293
CONTRACT : JYGC805223A
RELEAS # :
LOCATION- : 5407 DAYTON
VENDOR : 59781
NET 30 DAY : TERMS

Dat	Ite #	Work Tkt	Description	Qty	Unit Pr	Amount
Sep06/2000	2440230	088148	10-200-0032	5.75	65.00	373
Sep06/2000	4000024	088148	MISC EQUIP	2.00	486.20	972.
Sep06/2000	4000029	088148	SAMPL CHARG	14.00	1,011.84	14,165.7(
			Sub-total (Work Ticket: 088148)			15,511.'
			Invoic Total			15,511.0'

Fuel Order II 2

ONYX
/X Industrial Services, Inc.

ONYX INDUSTRIAL SERVICES, INC.
6151 EXECUTIVE BOULEVARD • DAYTON, OHIO 45424
PHONE 937 237 1097 • FAX 937 237 1850

TIME SHEET

RD 88148

DATE 9-6-00

USTOMER Diamler Chrysler ADDRESS Webster St Dayton, Ohio 99[illegible]

P O NO GATE PASS PHONE NO [illegible]

IS 0600 OJ 0700 LJ 1245 RS LESS Lunch TOTAL HOURS

EQUIPMENT	EQUIP #	NO HOURS	RATE	AMOUNT	
JET					
IND WASH TRUCK					
WATER BLASTER					
VACTOR					
TURBO VAC					
TANKER					
TRACTOR					
PUMP TRUCK					
TRASH PUMP					
DUMP TRAILER					
BOX TRAILER					
CAMERA UNIT					
BOB CAT		13 200 · 0038			
BACK HOE	R-1	575	6500	373	75
SUPPORT TRUCK	187	P/U + Day	110		—
ELEC MACHINE					
STEAM CLEANER					
FRAC					
ROLL					
ROLL					
DRUM					
AIR C					
GENE					
DISP					
CSE E					
AIR SU					
POWE					
DEMU					
ULTA					
CHEM					

What did LJB do?
What equipment was used?
Check contract for sample requirement

SUPPLIES	QUAN	RATE	AMOUNT	
RUBBER GLOVES				
RAIN SUIT				
RESPIRATOR CART				
DUST MASKS				
TYVEK SUIT				
SARANEX SUIT				
CELL DRY				
FLOOR DRY				
MAXI SORB				
ABSORBENT PADS				
SPILL BOOMS				
PLASTIC (ROLL)				
DUCT TAPE				
ROLL OFF LINERS				
ACID SUIT				
EDF				
K-880				
DRUM LINERS				
DRUMS				
DISP BOOTS				
Analytical	14	1,011.84	14,165	76
FORK LIFT				
LJB Charges			862	40
[illegible]				
# 2 SUBTOTAL ▶				

TECHNICIANS	EQUIP #	HOURS	RATE	AMOUNT
Darrell Turner	R-1			

SUPERVISOR	VEH NO	HOURS	RATE	AMOUNT
Mike Webb		~~525~~	~~[illegible]~~	~~[illegible]~~

MILEAGE	# 3 SUBTOTAL ▶	
MANIFEST NO		
TOTAL GALS	# 1 SUBTOTAL	[illegible]
LOADING TIME TO	# 2 SUBTOTAL	
UNLOADING TIME TO	# 3 SUBTOTAL	155119
LOCATION & DESCRIPTION	TOTAL ▶	155119

WTP - Work with representatives from LJB to pull samples of soil from the 13 roll off boxes. & One liquid.

Total 14 samples

ONYX REPRESENTATIVE SIGNATURE: Darrell T.

CUSTOMER SIGNATURE:

DaimlerChrysler

FIELD ORDER

Field Order No ONYX - 2 | Issue Date 8-30-00

Job No | P O Number JYGC 805223

Project Name Soil & Water Sampling | Pant/Site Dayton Thermal

Bulletin No ONYX - 2 | Contractor's Name Onyx

THIS ORDER TO BE ISSUED FOR CHANGES ONLY

NORMAL SITUATION

(XX) Contractor is hereby authorized to proceed with the scope of work outlined in Construction Bulletin No ONYX - 2 If not already submitted, contractor must prepare a formal quotation in accordance with the General Condition for Construction Contracts

EMERGENCY

( ) Proceed at once with the following change in the scope of work This Field Order will be followed by a Construction Bulletin describing the work in detail Contractor must prepare a formal quotation within 14 days from issuance and in accordance with the General Conditions for Construction Contracts

Reason for Emergency Processing _____

DESCRIPTION

Sample and analyze material in one frac tank and 13 roll-off boxes (with a standard 2-week turn around) for disposal at the Dayton Thermal Plant

Total estimated cost for this work is $ ~~16,800~~ $15,511.91

Issuance of this Field Order does not indicate approval of a specified dollar amount to cover the scope of work performed The final cost of this Field Order will be shown on a Purchase Order Change, which will be issued only after submission by contractor of a formal quotation, which has been accepted and agreed to by Pollution Prevention and Remediation and Corporate Purchasing

Signature Remediation Specialist/Date

Signature Director - PP&R/Date

8/30/00

Signature Supervisor - Environmental Remediation/Date

8/31/00

Signature Financial Specialist/Date

Signature Senior Manager - Environmental Remediation/Date

Signature Environmental Financial Controller/Date

DaimlerChrysler

CONSTRUCTION BULLETIN

Bulletin No ONYX - 2 | Issue Date 8-30-00

Job No | P O Number JYGC 805223

Project Name Soil & Water Sampling | Plant/Site Dayton Thermal

Field Order No ONYX - 2 | Contractor's Name Onyx

THIS IS NOT AN ORDER

This is a request for quotation to furnish all labor, material & equipment required for the completion of the work described including all items incidental thereto or necessary to properly complete the work even through not specifically mentioned The original contract documents and/or specifications applicable shall apply to this bulletin unless otherwise mentioned

The Contractor shall submit within 14 calendar days his proposal for any change to the contract amount or time of completion as a result of the work described herein

The following drawings/specifications accompany this Bulletin

( ) Not Applicable

WORK DESCRIPTION: (To include location, shift overtime, and/or Special Conditions, etc)

Sample and analyze material in one frac tank and 13 roll-off boxes (with a standard 2-week turn around) for disposal at the Dayton Thermal Plant

Address Reply to
DIAMLERCHRYSLER CORPORATION
PURCHASING DEPARTMENT

Signature Remediation Specialist/Date

(2) Copies to
POLLUTION PREVENTION AND REMEDIATION

Signature Supervisor - Environmental Remediation/Date

ONYX

PROPOSAL

ONYX Industrial Services, Inc.
8151 Executive Blvd.
Huber Heights, OH 45424
(937) 237-1097
Fax (937) 237-1850
Fax (937) 237-3669 (Accounting & Sales)

W-0350

PROPOSAL SUBMITTED TO:	DESCRIPTION OF JOB:	
DAIMLER CHRYSLER	Job	
800 CHRYSLER DR.	Address	
AUBURN HILLS, MI 48326-2757	City / State	
ATTN: MR. GARY M. STANCZUK	Phone 248-576-7365 FAX#248-576-7369	Date 8/29/2000

We hereby submit specifications and estimates for

ONYX INDUSTRIAL SERVICES, INC. IS PLEASED TO PROVIDE THE FOLLOWING ESTIMATE FOR LJB TO PULL A LIQUID AND SLUDGE SAMPLE FROM FRAC 4101 AND 13 SOIL SAMPLES FROM ROLL OFF BOXES OF SOIL FROM BUILDING 40 U.S.T. AND SEPARATOR CLEANING. LJB WILL BE DOING WASTE DETERMINATION FOR DAIMLER CHRYSLER.

STANDARD TURN AROUND (2 WEEKS).....$16,800.00
RUSH (1 WEEK).....$23,268.75

ONYX WILL NEED A FIELD CHANGE ORDER SINCE APPROVED QUOTE STATES SAMPLING IS THE RESPONSIBILITY OF DAIMLER CHRYSLER.

IF THE ABOVE PROPOSAL IS ACCEPTABLE, PLEASE SIGN AT THE BOTTOM AND FAX BACK TO 937-237-1850 WITH A PURCHASE ORDER NUMBER SO THAT WE MAY SCHEDULE. IF YOU HAVE ANY QUESTIONS, PLEASE FEEL FREE TO CALL ME. THANK YOU!

We Hereby Propose to furnish labor and materials complete in accordance with above specifications, for the sum of

$ SEE ABOVE

With payment to be made as follows. NET 30 DAYS

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature Mike Webb MIKE WEBB

Note: This proposal may be withdrawn by us if not accepted within 30 days

ACCEPTANCE OF PROPOSAL— The above prices, specification and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Signature _____

Date Accepted _____ Signature _____

ONYX INDUSTRIAL SERVICES, INC.

ONYX

Daimler Chrysler
800 Chrysler Drive
Auburn Hills, MI 48326-2757
Gary Stanczuk

Gary, here is a break down of the charges for sampling.

Standard Turn
Analytical $1,011 84 per sample
Back hoe pick up and delivery $110 00
Backhoe with operator $650 00
LJB labor $862 40

Rush.
Analytical $1,443 09 per sample
All other charges are the same as above.

6151 Executive Blvd , Huber Heights, OH 45424 (937) 237-1097 Fax (937) 237-1660 (937) 237-3869 (Accounting)

DaimlerChrysler

FIELD ORDER

Field Order No ONYX - 3 | Issue Date 10-4-00

Job No | P O Number JYGC 805223

Project Name Soil & Water Disposal | Pant/Site Dayton Thermal

Bulletin No ONYX - 3 | Contractor's Name Onyx

THIS ORDER TO BE ISSUED FOR CHANGES ONLY

NORMAL SITUATION

(XX) Contractor is hereby authorized to proceed with the scope of work outlined in Construction Bulletin No ONYX - 3 If not already submitted, contractor must prepare a formal quotation in accordance with the General Condition for Construction Contracts

EMERGENCY

( ) Proceed at once with the following change in the scope of work This Field Order will be followed by a Construction Bulletin describing the work in detail Contractor must prepare a formal quotation within 14 days from issuance and in accordance with the General Conditions for Construction Contracts

Reason for Emergency Processing _____

DESCRIPTION

Transport and dispose of material in 13 roll-off boxes from the Dayton Thermal Plant

Total estimated cost for this work is $ 14,675

Issuance of this Field Order does not indicate approval of a specified dollar amount to cover the scope of work performed The final cost of this Field Order will be shown on a Purchase Order Change, which will be issued only after submission by contractor of a formal quotation, which has been accepted and agreed to by Pollution Prevention and Remediation and Corporate Purchasing

Signature Remediation Specialist/Date

Signature Director - PP&R/Date

Signature Supervisor - Environmental Remediation/Date 10/4/00

Signature Financial Specialist/Date 10/5/00

Signature Senior Manager - Environmental Remediation/Date

Signature Environmental Financial Controller/Date

DaimlerChrysler

CONSTRUCTION BULLETIN

Bulletin No ONYX - 3 | Issue Date 9-20-00

Job No | P O Number JYGC 805223

Project Name Soil & Water Disposal | Plant/Site Dayton Thermal

Field Order No ONYX - 3 | Contractor's Name Onyx

THIS IS NOT AN ORDER

This is a request for quotation to furnish all labor, material & equipment required for the completion of the work described including all items incidental thereto or necessary to properly complete the work even through not specifically mentioned The original contract documents and/or specifications applicable shall apply to this bulletin unless otherwise mentioned

The Contractor shall submit within 14 calendar days his proposal for any change to the contract amount or time of completion as a result of the work described herein

The following drawings/specifications accompany this Bulletin

( ) Not Applicable

WORK DESCRIPTION (To include location, shift overtime, and/or Special Conditions, etc)

Transport and dispose of material in 13 roll-off boxes from the Dayton Thermal Plant

Address Reply to
DIAMLERCHRYSLER CORPORATION
PURCHASING DEPARTMENT

(2) Copies to
POLLUTION PREVENTION AND REMEDIATION

Signature Remediation Specialist/Date

Signature Supervisor - Environmental Remediation/Date

ONYX INDUSTRIAL SERVICES, INC.

ONYX

TO GARY STANCZUK

FROM MIKE WEBB

DATE 9/28/00

RE SOIL DISPOSAL AT DAYTON

Gary, I received the analytical results from LJB The results show below detection limits on everything except PCB's in one box at a level of 0 7 PPM All most all boxes also showed low levels of Barium(well below action levels) LJB has informed me that the soil is non-hazardous, therefore this will allow us to haul the material to Suburban RDF for disposal

The pricing for this is as follows 265
Transportation----------$~~360~~ 00/load estimated 20-25loads = 5,300
Disposal----------$ 35 00/ton estimated 240-300 tons 8,400
Backhoe with Operator----------$ 65 00/hour estimated 20 hours 975
15
14,675

The backhoe is needed due to the fact that boxes had to be loaded heavy to reduce the storage area and impact on plant parking

I am sending you the analytical results for your review If you could give me approval and a field change order I will begin hauling soil off site If you have any questions feel free to give me a call

Thank you,
Mike Webb

Mike Webb

6151 Executive Blvd , Huber Heights, OH 45424 (937) 237-1097 Fax (937) 237-1850 (937) 237-3669 (Accounting)

Mike_Webb/ONYX-Industrial@onyx-industrial com on 11/09/2000 07 12 36 AM

To gms9@daimlerchrysler com
cc

Subject PCB Disposal Gary, I just received a bill for the disposal of the PCB water from building 40 The invoice is for transportation , disposal and wash out of tanker Onyx Environmental is asking for disposal of 3,800 gallons @ 9 pounds per gallon at a cost of $ 51 per gallon This would be a disposal cost of $17,442 00, transportation cost of $3,166 80, and a clean out cost of $7,840 13 (this includes the $5,000 00 wash out and 1,809 gallons of solvent at $1 57 per gallon) The total cost for the PCB's are $28,448 93 If you have any questions feel free to give me a call Have a great day Regards Mike

ONYX INDUSTRIAL SERVICES INC.
FORMERLY WAST MNGMNT IND SERV
6151 EXECUTIV BLVD
HUBER HEIGHTS OH 45424

Remit t : ONYX INDUSTRIAL SERVICES INC.
P BOX 70610
CHICAG IL 60673-0610
****PAYMENTS ONLY****

Invoic t: CHR001
DAIMLERCHRYSLER CORP A/P
P BOX 537927
LIVONIA MI 48153-7927

48153
Ordered By:
P.O. # : JYGC805223A
Work Desc : CLEAN SEWER LINES

Invoic # : 174511B
Invoic Dat: May30/2000
Onyx W.O. # : 992293
CONTRACT : JYGC805223A
RELEAS # : YGQP000212 8
LOCATION- : ~~[illegible]~~ 1100
VENDOR : 59781
NET 30 DAY : TERMS

Dat	Ite #	Work Tkt	Description	Qty	Unit Pr	Amount
Apr20/2000	4000022	078060	TRANSPORTIN	1.00	360.00	360.0(
			Sub-total (Work Ticket: 078060)			583.6:
Apr21/2000	4000020	078061	DISPOSAL	13.01	35.00	455.
Apr21/2000	4000022	078061	TRANSPORTIN	1.00	360.00	360.0(
			Sub-total (Work Ticket: 078061)			815.3:
Mar28/2000	2040010	078248	TRACTOR 010	1.25	62.50	78.1
Mar28/2000	2050021	078248	TANKER 021	1.00	130.00	130.0
Mar28/2000	4000020	078248	DISPOSAL	3933.00	1.51	5,938.8
Mar28/2000	4000023	078248	DEMURRAG TIM	8.00	65.00	520.00
			Sub-total (Work Ticket: 078248)			6,666.96
Apr23/2000	0000102	079877	13-200-0009	3.50	28.50	99.7
Apr23/2000	2030108	079877	WATER BLASTER 10	3.50	62.50	218.7
Apr23/2000	2080045	079877	VACTOR TURB	3.50	85.00	297.50
Apr23/2000	2450241	079877	CAMERA TRUCK 241	3.50	80.00	280.0
			Sub-total (Work Ticket: 079877)			896.00
Apr01/2000	4000024	ALL	MISC EQUIP	11,917	1.45	
Apr01/2000	4000025	ALL	13-200-0027	30.00	3,000.00	90,000.0(
			Sub-total (Work Ticket: ALL)			181,292.30
			Invoic Total			203,651.84

DNYX INDUSTRIAL SERVICES INC
FORMERLY WASTE MNGMNT INDUSTRIAL SERV
5151 EXECUTIVE BLVD
HUBER HEIGHTS OH 45424

Invoice : CHR001
DAIMLERCHRYSLER CORP A/P
P BOX 537927
LIVONIA MI 48153-7927

48153
Ordered By:
P.O. # : JYGC805223A
Work Desc : CLEAN SEWER LINES

Invoice # : 74511
Invoice Date : May30,2000
Dnyx W.O.# : 992937
CONTRACT # : JYGC805223A
RELEASE # : REQ 1GOP0000235
LOCATION # : 5407 DAYTON
VENDOR # : 5978
NET 30 DAY : TERMS

Dat	Ite #	Work Tkt	Description	Qty	Unit Pr	Amount
			1 LOT-99-366.0001			
Apr01/2000	4000033	075952	FRAC RENTAL	1.00	2,100.00	
Apr12/2000	4000020	077186	DISPOSAL	20.86	35.00	730.10
Apr12/2000	4000022	077186	TRANSPORTIN	2.00	365.00	730.00
			Sub-total (Work Ticket: 077186)			1,460.10
Apr13/2000	4000020	077187	DISPOSAL	20.88	35.00	730.80
Apr13/2000	4000022	077187	TRANSPORTIN	2.00	365.00	730.00
			Sub-total (Work Ticket: 077187)			1,460.80
Apr17/2000	4000020	077191	DISPOSAL	5.41	35.00	189.35
Apr17/2000	4000022	077191	TRANSPORTIN	1.00	365.00	365.00
			Sub-total (Work Ticket: 077191)			554.35
Apr24/2000	0000300	077196	13-200-0011	6.00	19.75	118.50
Apr24/2000	2040299	077196	TRACTOR	5.00	62.50	312.50
			Sub-total (Work Ticket: 077196)			431.00
Apr25/2000	4000020	077197	DISPOSAL	34.96	35.00	1,223.60
Apr25/2000	4000022	077197	TRANSPORTIN	2.00	360.00	720.00
			Sub-total (Work Ticket: 077197)			1,943.60
Apr20/2000	4000020	077225	DISPOSAL	15.61	35.00	546.35
Apr20/2000	4000022	077225	TRANSPORTIN	1.00	360.00	360.00
			Sub-total (Work Ticket: 077225)			906.35
Apr21/2000	4000020	077226	DISPOSAL	14.23	35.00	498.05
Apr21/2000	4000022	077226	TRANSPORTIN	1.00	360.00	360.00

Se next pag ....

ONYX INDUSTRIAL SERVICES INC.
FORMERLY WAST MNGMNT IND SERV
6151 EXECUTIV BLVD
HUBER HEIGHTS OH 45424

Remit t : ONYX INDUSTRIAL SERVICES INC.
P BOX 70610
CHICAG IL 60673-0610
****PAYMENTS ONLY****

Invoic t: CHR001
DAIMLERCHRYSLER CORP A/P
P BOX 537927
LIVONIA MI 48153-7927

48153
Ordered By:
P.O. # : JYGC805223A
Work Desc : CLEAN SEWER LINES

Invoic # : 174511
Invoic Dat: May30/2000
Onyx W.O. # : 992293
CONTRACT : JYGC805223A
RELEAS # :
LOCATION- : 5407 DAYTON
VENDOR : 59781
NET 30 DAY : TERMS

Dat	Ite #	Work Tkt	Description	Qty	Unit Pr	Amount
			Sub-total (Work Ticket: 077226)			858.05
Apr13/2000	4000020	077305	DISPOSAL	18.20	35.00	637.0
Apr13/2000	4000022	077305	TRANSPORTIN	2.00	365.00	730.00
			Sub-total (Work Ticket: 077305)			1,367.00
Apr21/2000	0000300	077509	13-200-0011	4.50	19.75	88.8
May02/2000	4000020	077566	DISPOSAL	8.76	35.00	306.6
May02/2000	4000022	077566	TRANSPORTIN	1.00	360.00	360.00
			Sub-total (Work Ticket: 077566)			666.60
Apr30/2000	4000020	077889	DISPOSAL	43.00	35.00	1,505.0
Apr30/2000	4000022	077889	TRANSPORTIN	2.00	360.00	720.00
			Sub-total (Work Ticket: 077889)			2,225.00
Apr26/2000	4000020	077891	DISPOSAL	32.29	35.00	1,130.1
Apr26/2000	4000022	077891	TRANSPORTIN	2.00	360.00	720.00
			Sub-total (Work Ticket: 077891)			1,850.15
Apr27/2000	4000020	077892	DISPOSAL	13.53	35.00	473.5
Apr27/2000	4000022	077892	TRANSPORTIN	1.00	360.00	360.00
			Sub-total (Work Ticket: 077892)			833.55
Apr27/2000	4000020	077893	DISPOSAL	18.77	35.00	656.9
Apr27/2000	4000022	077893	TRANSPORTIN	1.00	360.00	360.00
			Sub-total (Work Ticket: 077893)			1,016.95
Apr27/2000	4000020	077895	DISPOSAL	6.38	35.00	223.6

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

P.C.B. not anticipated on site —

Decon Frac Tanks

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80979	$359 38	$0 00	$0 00	$0 00	billing methodology unclear
79683	$2,257 50	$0 00	$0 00	$0 00	
79854	$1 936 51	$0 00	$0 00	$0 00	
79713	$837 51	$0 00	$0 00	$0 00	
80483	$567 00	$0 00	$0 00	$0 00	
80488	$136.00	$0 00	$0 00	$0 00	
Total	**$6,093 90**	**$0 00**	**$0 00**	**$0 00**	

Comments
- Frac tank decontamination was not included on the LBG Bid Form or on Onyx's Unit Pricing sheet in Onyx's proposal (Section IV) However, decon is required in Section 4 of LBG's Request for Bid Therefore, billing methodology is unclear (i e is decon included in the frac tank rental?)
- Onyx's price is based on hours and hourly rate for personnel Total hours and hourly rate (from Section IV, Unit Pricing sheet) appeared reasonable on all Onyx tickets

Why isn't this covered under Rental

Frac Tank Rental

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80003	$15,155 00	$350/week			see below
80381	$650 00	$350/week			
81745	$1,300 00	$350/week			
81743	$650 00	$350/week			
81742	$650 00	$350/week			
81807	$350 00	$350/week			
81532	$1,400 00	$350/week			
81529	$700 00	$350/week			
81536	$350 00	$350/week	$1500 per tank	See comments	
81530	$350 00	$350/week	7 tanks used for	below	
81039	$350 00	$350/week	project		
81024	$350 00	$350/week			
81023	$700 00	$350/week			
80994	$700 00	$350/week			
80993	$350 00	$350/week			
79657	$3,500 00	$350/week			
80987	$350 00	$350/week			
80921	$350 00	$350/week			
80918	$700 00	$350/week			
75952	$2,100 00	$350/week			
78405	$350 00	$350/week			
Total	**$31,355 00**	**$31,355 00**	**$10,500 00**	**$10,500 00**	

3-were here

650 EA pick & deliver

Comments
- The Onyx total is based on a weekly frac tank charge of $350/week as listed on Onyx's proposal Unit Pricing sheet (Section IV)
- The above Onyx price appears reasonable based on the weekly rate $31,355 00 equals 7 frac tanks for 12 75 weeks LBG estimates the frac tanks were onsite for 11-14 weeks (depending on delivery date) and therefore is a good estimate of Onyx's charges
- Based on the LBG Bid Form Onyx bid $1500 per frac tank for the project (total estimate was $3000) This may have been based on an estimated project length of ~10 weeks (I e from start date Nov 15, 1999 to end date January 2000) for two frac tanks
- Frac tanks sat onsite longer than Onyx had originally planned due to the time it took to make disposal decisions (especially with regard to the PCB issue)
- The LBG estimated price is based on the LBG Bid Form price of $1500 per frac for the project and 7 frac tanks

Sawcuts

8"-48" 6 x 2 12 x's

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
84804	$90,000 00	$3000 per sawcut	~$2428 per sawcut for an estimated 12 sawcuts	~$2428 per sawcut	
Total	**$90,000 00**	**$90,000 00**	**$29,140 00**	**$72,840 00**	

what was cut? Why was it not covered in the bid

Comments
- Onyx bid $2428 per sawcut on lines B, E and K of the LBG Bid Form Onyx estimated 12 sawcuts for the project
- The LBG estimated price is based on the LBG Bid Form price of $2428 multiplied by 30 sawcuts
- The cost per sawcut increased from $2428 to $3000 after Onyx's original subcontractor (K&T) was removed from the site for being non-union Onyx hired Fryman & Kuck to complete the sawcuts On December 8, 1999 Joe Whitlock approved the price increase to $3000 per sawcut to have Fryman & Kuck do sawcutting It is L understanding that Onyx and DaimlerChrysler came to an agreement on the higher cost

I don't know why we should pay the extra

I do not recall this.

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Roll Off Box Rental

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80919	$250 00	$50/week			
80922	$50 00	$50/week			
80990	$100 00	$50/week			
81037	$79 00	$50/week			
81042	$100 00	$50/week			
81046	$50 00	$50/week			
81048	$50 00	$50/week			
76024	$218 75	$50/week	$385 per roll off	$385 per roll off	
80489	$918 00	$50/week		9 roll offs used for project	T&M for moving rolloffs as per Plants request
76014	$62 50	$50/week			T&M for moving rolloffs as per Plants request
81522	$100 00	$50/week			
81523	$500 00	$50/week			
81525	$100 00	$50/week			
79654	$100 00	$50/week			
79650	$200 00	$50/week			
79676	$50 00	$50/week			
79677	$50 00	$50/week			
78407	$100 00	$50/week			
Total	**$3,078.25**	**$5,400 00**	**$385 00**	**$3,465 00**	

Comments
- The Onyx total is based on a weekly charge of $50/week as listed on Onyx's proposal Unit Pricing sheet (Section IV)
- The above Onyx price appears reasonable based on the weekly rate, however the delivery dates and length of time onsite are unknown
- LBG estimated the roll off box rental to be greater than what Onyx is billing This was estimated based on the number of roll offs onsite (9) and the bid price of $385 per roll off
- Note page 9, section 4 13 of the Request For Bid - Job Specifications states that contractor will not charge DaimlerChrysler for material or equipment moved Therefore, tickets *#80489 and 76014 should be $0 00*

T&M Cleaning and Video

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79552	$736 22	per hour per operator	$0 00	$736 22	
80490	$442 01	per hour per operator	$0 00	$442 01	
81296	$1,077 50	per hour per operator	$0 00	$1,077 50	
80487	$979 64	per hour per operator	$0 00	$979 64	
81706	$295 50	per hour per operator	$0 00	$295 50	
81707	$1,773 00	per hour per operator	$0 00	$1,773 00	
76481	$427 13	per hour per operator	$0 00	$427 13	
80480	$238 01	per hour per operator	$0 00	$238 01	
76706	$1,359 01	per hour per operator	$0 00	$0 00	Should be billed to plant for OR tank cleaning per Joe Whitlock's request and Bldg 53 Press 18 UST removal Decreased # of hours due to flow meter training session Section 4 16 in the Request for Bid states that the Contractor will not use the Project as a training program for any employee
75975	$1,507 00	per hour per operator	$0 00	$1,507 00	
76705	$1 048 89	per hour per operator	$0 00	$878 90	
76133	$167 75	per hour per operator	$0 00	$167 75	
76236	$381 75	per hour per operator	$0 00	$381 75	
76132	$2 299 83	per hour per operator	$0 00	$2,299 83	
76126	$592 00	per hour per operator	$0 00	$592 00	
76128	$130 50	per hour per operator	$0 00	$0 00	Should be billed to the plant because standing water in parking lot was removed per Bnt Crider's request
76124	$592 00	per hour per operator	$0 00	$592 00	
Total	**$14,047 74**	**$14,047 74**	**$0 00**	**$12,388.24**	

Comments
- Time and Material (T&M) was not part of the original bid Onyx charged their hours at the rates on their Unit Pricing sheet, Section IV These hours appeared reasonable except for those on tickets #76706, #75975 and # 76128
- It is LBG's understanding that T&M rates were agreed upon between Mike Webb (Onyx) and Gary Stanczuk
- Note All camera work was supposed to be included in the "per foot" price However it is LBG's understanding that an agreement was made between Onyx and DaimlerChrysler to pay Onyx for additional "investigative" camera work

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Sampling and Analytical

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
81291	$663 63	n/a	not in bid	$663 63	Mixing of roll off soils requested by LBG due to inability to sample without a backhoe LBG is unsure if this work was requested by corporate due to the PCB issue in Bldg 50 or if it is part of the standard sewer cleanout
80027	$2 668 25	n/a	not in bid	$0 00	
79465	$3,420 00	n/a	not in bid	$3,420 00	
Total	**$6,751 88**	**n/a**	**$0 00**	**$4,083 63**	

Comments
- Onyx ticket # 81291 appears reasonable based on the hourly unit price stated on their Unit Pricing sheet in Section IV of their proposal
- Onyx ticket # 79465 is only the lab analytical fee

Transportation and Disposal of Chlorinated Solvents (hazardous liquid)

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79787	$5,815 01	n/a	$1 51 /gallon	$5,815 01	3851 gallons
Total	**$5,815 01**	**n/a**	**$5,815 01**	**$5,815 01**	

Comments
- This dollar amount is consistent with the LBG Bid Form price of $1 51 per gallon for hazardous liquid waste transport and disposal to Suburban RDF

Transportation and Disposal of PCB Oil

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79744	$125 00	$62 50 per hour	$0 00	$0 00	Travel to site is not in bid
80904	$140 62	$62 50 per hour	$0 00	$0 00	Pumping oil into tanker is not in bid
79777	$11,271 00	n/a	$1 51 /gallon	$2,265 00	1500 gallons see comment below (*)
80956	$3,850 00	$0 00	$0 00	$0 00	mileage is not included in bid
Total	**$15,386 62**	**$0 00**	**$2,265 00**	**$2,265 00**	

Comments
- * The rate for disposal of the PCB oil may be reasonable since it had to be brought to Texas further than was most likely anticipated by Onyx.
- The LBG estimated is based on $1 51 per gallon of hazardous liquid disposal, as noted on the LBG Bid Form
- Is hauling PCB oil to Texas paid by the hour and gallon? And is DC also paying for the disposal facility disposal fee?
- Ticket # 80956 includes mileage returning from Texas This is not listed in the LBG Bid Form or Onyx's Unit Pricing table (Section IV)

Transportation and Disposal of Non-Hazardous Water

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
81846	$1,335 65	n/a	$0 33 per gallon	$1,485 00	4500 gallons
81307	$2 054 90	n/a	$0 33 per gallon	$1,815 00	5500 gallons
81305	$1,765 14	n/a	$0 33 per gallon	$1,650 00	5000 gallons
81646	$1,265 09	n/a	$0 33 per gallon	$1,155 00	3500 gallons
81648	$1,745 96	n/a	$0 33 per gallon	$1,650 00	5000 gallons
81797	$1 226 73	n/a	$0 33 per gallon	$1,320 00	4000 gallons
81798	$1,364 42	n/a	$0 33 per gallon	$2 640 00	9000 gallons
81799	$3 063 80	n/a	$0 33 per gallon	$3,300 00	10000 gallons
81800	$2,875 42	n/a	$0 33 per gallon	$2,805 00	8500 gallons
79546	$1,794 60	n/a	$0 33 per gallon	$1,584 00	4800 gallons
79535	$93 75	n/a	$0 33 per gallon	$0 00	Load ~5000 gallons, T&M not in bid to load truck
81712	$1 619 24	n/a	$0 33 per gallon	$1 551 00	4700 gallons
78417	$370 00	n/a	$0 33 per gallon	$0 00	T&M not in bid to to clean up leaking drums
79699	$995 00	n/a	$0 33 per gallon	$326 70	18, 55 gallon drums = 990 gallons
82475	$963 69	n/a	$0 33 per gallon	$963 69	unknown gallons
82472	$824 75	n/a	$0 33 per gallon	$0 00	$824 75 refers to Ticket # 82475, not a dollar amount See tickets 82472 and 82475
Total	**$23,358 14**	**n/a**	**$22,245 39**	**$22,245 39**	

Comments
- Non-Haz water was charged at a rate of $0 33 per gallon for the LBG estimated price
- Onyx used a truck rate and hourly rate to come up with their price It is similar but not exactly the same as LBG's estimated price
- T&M was not included in the bid for non-haz water transport and was removed from the LBG estimate
- Ticket #82472 was added into the Onyx price when in fact it was just referencing ticket #82475, not a dollar amount of $824 75

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Itemized Onyx Ticket Grand Totals

Onyx price	LBG estimated price
$105,886 54	**$60,762.27**

Includes everything above except sawcuts

Sewer Cleanout, Feet Cleaned

Onyx's Total Feet Cleaned as per Mike Webb	Measured from LBG "Cleaned Sewers" map
12,254 feet $7 45 per foot	9,171 feet $7 45 per foot
$91,292 30	**$68,323 95**

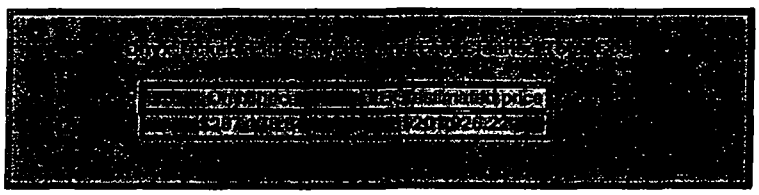
11,917 LF

2,750 LF

See ticket #84804 for Onyx's total feet cleaned and camera'd

Number of Sawcuts

Onyx total	LBG total
30 $3000 per sawcut	30 $2428 per sawcut
$90,000 00	**$72,840 00**



DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Comments

LBG Summary

- Onyx did not supply any maps or drawings as was requested in Section 3 4 of the Request for Bid - Job Specification and Section I in Onyx's Proposal
- LBG assumes that Onyx and DaimlerChrysler are working together for payment of work done in the locker room of Building 40, where the fireline was cut. It is LBG's understanding that this is a separate issue to the above fees
- A non-union concrete shop (K&T) was hired to perform concrete cutting and excavation work. K&T assured everyone in the prebid meeting that they were union During work in Building 40 the plant union representative discovered that K&T was not a union shop As a result, K&T was removed from the plant by the plant union representative Fryman & Kuck were then brought in to finish the excavation at a higher cost. These higher costs remained for the duration of the project
- Sewer line sealing is included in the per foot cleaning bid of $7 45 per linear foot. (see Onyx's proposal, Section III)
- Camera work (excluding additional investigative T&M) is included in the per foot cleaning bid of $7 45 per linear foot (see Onyx's proposal, Section III)

Additional comments

- Onyx had poor health and safety while handling jet/vac hoses, liquids and solids Onyx did, however, make sure that all their employees were clean shaven incase they had to wear a respirator, and they almost always wore their safety glasses and ear plugs Dermal contact with substances and eating without washing up were the biggest areas to be improved upon Onyx had exceptional health and safety while removing the UST in Building 53 They were fully suited in Level A PPE Their first try took all day with no results.
- Onyx worked very well while under the direct supervision of Mike Webb There were many unproductive hours (totaling days) when Mike Webb was not onsite Poor performance includes, but not limited to standing around talking, disappearing and not being able to be found, making uneducated decisions, not being onsite, taking long lunches
- Onyx was willing to work very strenuous hours at times For example working all night on the Building 53 Press 18 UST removal, working all night to vac up an oil overflow in Building 53
- Onyx was very considerate to the operations of the plant and did not interfere (intentionally) with plant activities If they did interfere (unintentionally), they moved immediately when asked by LBG or the plant (i e having to move out of the south end of Bldg 40 because the jet truck was blocking the main fire escape aisleway This was the only place the truck could be because the plant had just painted aisleways)
- Onyx made good efforts to properly vent their trucks' exhaust or leave their trucks outside and bring the jet/vac hose in through doorways to avoid filling the buildings with exhaust
- At times the plant was difficult to work with because they were concerned with who was going to pay for what, who would make a decision, and/or there was poor communication with plant management and maintenance as to when aisleways were being painted and floors being re-coated
- Onyx responded quickly to plant safety concerns (i e fixing a weld on a steel plate that was covering a sawcut immediately after a person tripped on it)
- Onyx was always onsite early, however, they had little daily preparation which led to unproductive early morning downtime The crew did not work well when not under the direct supervision of Jeff Fuston, Mike Webb or John Winters
- Onyx did a very good job cleaning up areas after sawcutting and jetting and vacuuming sewer lines

ONYX INDUSTRIAL SERVICES, INC.

ONYX

TO GARY STANCZUK

FROM MIKE WEBB

DATE 10/24/00

RE CLOSURE OF LINES IN BUILDING 50

GARY
HERE IS THE QUOTE FROM FRYMAN-KUCK ON THE LINES IN BUILDING 50 THE TOTAL COST WITH MY 15% MARK-UP IS $11,387 30 THE CONCRETE IS $79 30 PER YARD, MANPOWER $46 00 PER HOUR STRAIGHT TIME AND $63.00 FOR OVERTIME AND CONCRETE TRUCK IS $128 10 PER HOUR THESE ARE FRYMAN-KUCK STANDARD RATES TO DAIMLER CHRYSLER, IF YOU HAVE ANY QUESTIONS FEEL FREE TO GIVE ME A CALL

THANKS
MIKE

7.5% Mark-up
$ 10,644.65

Fax page 313-660-7612

Sand, Cement mix
Placed $55/CY.
Labor & material

90 x 55 = 4950
x 125%
$5569.00

6151 Executive Blvd Huber Heights, OH 45424 (937) 237-1087 Fax (937) 237-1850 (937) 237-3689 (Accounting)

FRYMAN-KUCK GENERAL CONTRS., INC.

FACSIMILE TRANSMITTAL SHEET

TO: Mike Webb	FROM: Deb Flatter
COMPANY: Onyx	DATE: 10/24/00
FAX NUMBER: 237-1850	TOTAL NO. OF PAGES INCLUDING COVER: 1
PHONE NUMBER:	SENDER'S REFERENCE NUMBER:
RE: Chrysler quote	YOUR REFERENCE NUMBER:

☐ URGENT ☑ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS:

Mike:

We propose to furnish all labor, material, and equipment to grout a line in Building 50, based on the hours and information you gave my by phone today, for the sum of $ 9,902.00 (Nine Thousand Nine Hundred Two Dollars).

Labor – 3 men for 10 hours each		$ 1,484.00	49
Material – 90 Yds of 3000 psi concrete	$ 7020	~~$ 7,137.00~~	79 78
Concrete pump		$ 1,281.00	

If you have any further questions, please call.

Deb Flatter
Project Manager

P.O. BOX 13655, 5150 WEBSTER ST., DAYTON, OHIO 45413
PHONE (937) 274-2892
FAX (937) 274-9485

ONYX INDUSTRIAL SERVICES, INC.

ONYX

Chrysler

To: Gary Stanczuk

From: Mike Webb

Date: 3/22/00

Re: Price Breakdown

Gary,
Here is the price breakdown for pumping of lines full of grout

Building 50		
Labor		
5 men x8 hours reg. Rate		
5 men x 2 hours overtime rate	$2,705.00	54/hr
Materials		
Approximately 90 yards of grout	$7,755.00	86/yd
Concrete pump	$1353.00	27/hr
	$11,813 00	

If job is to be done on weekend add an additional $1,850.00

Building 40 south end		
Labor		
6 men x 8 hours		
6 men x 3 hours overtime	$1524.00	23/hr
Materials		
Approximately 90 yards of concrete	$1662.00	18.5/yd
Pump	$1,589.00	24/hr
	$7,092.00	

Quote to vent lines, as needed		
Labor		
5 men x 1.5 hours x 4 vents	$1,524 00	50.8/hr
Equipment	$ 448 00	
Pump extra time	$ 471.00	
	$2,443 00	

If you have any questions feel free to give me a call.

6151 Executive Blvd . Huber Heights, OH 45424 (937) 237-1087 Fax (937) 237-1850 (937) 237-3669 (Accounting)

Ken Vogel <KVogel@lbgmn.com> on 11/08/2000 05:42:40 PM

To: "Gary Stanczuk (E-mail)" <gms9@daimlerchrysler com>
cc:

Subject: FW: Dayton Sewer Cleanout

Gary, attached is Mike Plante's summary of his review of Onyx water volumes associated with sewer cleaning. As you know, we were not providing field oversite for the duration of the project, so our review involved independent estimations to supplement our direct field observations and Onyx reports. Since I will be out of the office Thursday afternoon and Friday, please contact Mike Plante should you wish to discuss this issue in greater detail.

Regards,
Ken

****
Kenneth D. Vogel, PG, CHMM
Senior Associate
LEGGETTE, BRASHEARS & GRAHAM, INC.
1210 West County Road E, Suite 700
St. Paul, Minnesota 55112
(651) 490-1405 ext. 202
(651) 490-1006 FAX
email: kvogel@lbgmn.com

> -----Original Message-----
> From: Mike Plante
> Sent: Wednesday, November 08, 2000 4:37 PM
> To: Ken Vogel
> Subject: Dayton Sewer Cleanout
>
> Ken,
>
> Onyx reported the following disposal quantities on their billing sheets.
>
> Liquids
> Non-haz water transport and disposal 65,490 gallons
> haz liquid transport and disposal 3,851 gallons
> Total Billed 69,341 gallons
>
> LBG estimated approximately 96,000 cumulative gallons were used/removed
> from the sewer cleanout project. This amount is based on daily estimated
> fluids use/removal as reported by Onyx to LBG personnel.
>
> Also, seven frac tanks were used for the project. Below is a summary of
> estimated quantities in each frac tank or tanker truck. LBG personnel
> estimated these quantities and there is some estimation error because the
> "amount full" variable was estimated by looking inside the frac tanks.

>
> Frac/Truck Approx. Capacity (gal) Amount full
> Total gallons Comment
> 4101 15,000 2/5 full
> 6,000 gallons haz-product and water
> 3351 20,000 full
> 20,000 gallons
> 4118 20,000 1
> 20,000 gallons
> 4109 20,000 1 & 1/2
> 30,000 gallons filled-emptied, and filled again
> 4114 20,000 1/2 full
> 10,000 gallons
> 4102 20,000 2/5 full
> 8,000 gallons
> 4117 20,000 3/5 full
> 12,000 gallons
> tanker319 6,000 full
> 6,000 gallons
> tanker261 6,000 full
> 6,000 gallons
> Total Estimated Volume of Liquid Excluding Haz
> 112,000
>
>
> I ok'd Onyx's estimated volume removed/disposed because their amount was
> less than both LBG estimates. The time frame in which the disposal took
> place was consistent with LBG's notes and the time and material rates were
> consistent with what Onyx provided in their original bid.
>
>
> Mike
>
>
> Michael Plante
> Hydrogeologist I
>
> LEGGETTE, BRASHEARS & GRAHAM, INC.
> 1210 West County Road E, Suite 700
> St. Paul, MN 55112
> 651-490-1405 ext. 216
> fax: 651-490-1006
> mplante@lbgmn.com
>

PROPOSAL

ONYX Industrial Services, Inc.
6151 Executive Blvd
Huber Heights, OH 45424
(937) 237-1097
Fax (937) 237-1850
Fax (937) 237-3669 (Accounting & Sales)

Page No.____ of____ Pa

UW-0350

PROPOSAL SUBMITTED TO:	DESCRIPTION OF JOB:	
DAIMLER CHRYSLER	Job	
800 CHRYSLER DR.	Address	
AUBURN HILLS, MI 48326-2757	City / State	
ATTN: MR. GARY M. STANCZUK	Phone 248-576-7365 FAX#248-576-7369	Date 8/29/2000

We hereby submit specifications and estimates for:

ONYX INDUSTRIAL SERVICES, INC. IS PLEASED TO PROVIDE THE FOLLOWING ESTIMATE FOR LJB TO PULL A LIQUID AND SLUDGE SAMPLE FROM FRAC 4101 AND 13 SOIL SAMPLES FROM ROLL OFF BOXES OF SOIL FROM BUILDING 40 U.S.T. AND SEPARATOR CLEANING. LJB WILL BE DOING WASTE DETERMINATION FOR DAIMLER CHRYSLER.

STANDARD TURN AROUND (2 WEEKS).....$16,800.00
RUSH (1 WEEK).....$23,268.75

ONYX WILL NEED A FIELD CHANGE ORDER SINCE APPROVED QUOTE STATES SAMPLING IS THE RESPONSIBILITY OF DAIMLER CHRYSLER.

IF THE ABOVE PROPOSAL IS ACCEPTABLE, PLEASE SIGN AT THE BOTTOM AND FAX BACK TO 937-237-1850 WITH A PURCHASE ORDER NUMBER SO THAT WE MAY SCHEDULE. IF YOU HAVE ANY QUESTIONS, PLEASE FEEL FREE TO CALL ME. THANK YOU!

We Hereby Propose to furnish labor and materials complete in accordance with above specifications, for the sum of

$ SEE ABOVE

With payment to be made as follows. NET 30 DAYS

All material is guaranteed to be as specified All work to be completed in a workmanlike manner according to standard practices Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate All agreements contingent upon strikes, accidents or delays beyond our control Owner to carry fire, tornado and other necessary insurance Our workers are fully covered by Workmen's Compensation Insurance

Authorized Signature Mike Webb MIKE WEBB

Note: This proposal may be withdrawn by us if not accepted within 30 days.

ACCEPTANCE OF PROPOSAL— The above prices, specification and conditions are satisfactory and are hereby accepted You are authorized to do the work as specified Payment will be made as outlined above.

Signature _____

Date Accepted _____ Signature _____

(1)

Onyx

174921	76128	$ 0
	76706	0
	84747	5,868
	84783	8,558,82
	84968	8,794,38
	84984	2,495.00
	85069	2,693,83
	86755	1,228,50
	86786	1,200
	86787	1800
	89089	1.370,58
		$ 34,009.11
17417A		$ 37,234
17417B	74952	342
	74954	342
	74955	57
	74958	267.88
	74961	337
	74962	802.24
	74963	179
	74972	214
	74973	271
	74977	371
	74978	371
	75975	1,507
	76014	62,50
	76024	218.75
	76124	592
	76126	592
	76132	2299.82
	76133	167,75
	76236	381.75
	76240	4093,27
	76481	427.13
	76703	2466.75
	76704	2214
	76705	1,048.88
	76706	1,359
	78405	350
	78407	100
	78417	370
	79465	3,420
	79535	93.75
	79546	1,794.68
	79552	736.22
	79650	200
	79654	108
	79657	3508
	79676	50
	79677	50
	79683	225750
	79699	995
	79713	837.51
	79774	125
	79777	11,271
	79787	5815.01
	79854	1936.50
	80001	7,440.34
	80002	8,025
	80003	15,155
	80027	2,668.25
	80381	658
	80480	238
	80483	567
	80487	979,63
	80488	136
	80489	918
	80490	442
	80904	140,63

(2)

17417 B

80918	$700	81529	700	
80919	250	81530	350	
80921	350	81532	1,400	
80922	50	81536	350	
80956	3,850	X 81561	179	
80979	359.38	81564	265.38	
80987	350	81646	1,265.69	
80990	100	81648	1,745.96	
80993	350	81706	295.50	
80994	700	81707	1,773	
81013	298.60	81712	1,619.24	
81016	298.60	81742	650	
81020	28.50	81743	650	
81023	700	81745	1,300	
81024	350	81795	1,226.73	
81037	79	81798	1,364.42	
81039	350	81799	3,063.80	
81042	100	81800	2,875.42	
81046	50	81807	350	
81048	50	81846	1,335.65	
81121	179	81882	179	
81181	179	81885	179	
81182	179	82475	963.69	
81202	442			
81203	442		$96,464.79	
81204	214			
81205	371	174658	17523	$2280
81206	371			
81207	314			
81208	214	175221	86659	13,930
81291	663		87501	2,677.40
81296	1,077.50			
81305	1,765.14		$16,607.40	
81307	2,054.90			
81520	100			
81522	100			
81523	500			
81525	100			

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Transportation and Disposal

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
77891	$1,850 15	hourly rate and disposal fee	$0 00	$1,850 15	Taken to Suburban RDF
77893	$1,016 95	hourly rate and disposal fee	$0 00	$1,016 95	Taken to Suburban RDF
77892	$833 55	hourly rate and disposal fee	$0 00	$833 55	Taken to Suburban RDF
77566	$666 60	hourly rate and disposal fee	$0 00	$666 60	Taken to Suburban RDF
77889	$2,225 00	hourly rate and disposal fee	$0 00	$2,225 00	Taken to Suburban RDF
78060	$583 65	hourly rate and disposal fee	$0 00	$583 65	Taken to Suburban RDF
77305	$1,367 00	hourly rate and disposal fee	$0 00	$1,367 00	Taken to Suburban RDF
77226	$858 05	hourly rate and disposal fee	$0 00	$858 05	Taken to Suburban RDF
77225	$906 35	hourly rate and disposal fee	$0 00	$906 35	Taken to Suburban RDF
77197	$1,943 60	hourly rate and disposal fee	$0 00	$1,943 60	Taken to Suburban RDF
77196	$431 00	hourly rate and disposal fee	$0 00	$431 00	Taken to Suburban RDF
77191	$554 35	hourly rate and disposal fee	$0 00	$554 35	Taken to Suburban RDF
77187	$1,460 80	hourly rate and disposal fee	$0 00	$1,460 80	Taken to Suburban RDF
[illegible]	$1,460 10	hourly rate and disposal fee	$0 00	$1,460 10	Taken to Suburban RDF
[illegible]	$6,666 95	hourly rate and disposal fee	$0 00	$6,666 95	Taken to Onyx Environmental High levels of PCBs
[illegible]	$815 35	hourly rate and disposal fee	$0 00	$815 35	Taken to Suburban RDF
[illegible]	$583 65	hourly rate and disposal fee	$0 00	$583 65	Taken to Suburban RDF
84747	$5,868 00	hourly rate and disposal fee	$0 00	$5,868 00	Taken to Onyx Environmental Sludge
89089	$1,370 58	hourly rate and disposal fee	$0 00	$1,370 58	Taken to Suburban RDF
84783	$8,558 82	hourly rate and disposal fee	$0 00	$8,558 82	Taken to SRR
84968	$8,794 38	hourly rate and disposal fee	$0 00	$8,794 38	Taken to Onyx Environmental Sludge
86659	$13,930 00	hourly rate and disposal fee	$0 00	$13,930 00	Drum disposal
Total	**$62,744.88**	–	**$0.00**	**$62,744.88**	

Itemized Onyx Ticket Grand Totals

Onyx price	LBG estimated price
$107,466.91	**$106,936.04**

Comments

- T&M tickets # 75952 and 78417 have already been submitted and not included in this summary

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

T&M Frac Tanks and air compressors due to freezing

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
81564	$265 38	per hour per operator	$0 00	$265 38	
74977	$371 00	per hour per operator	$0 00	$371 00	
81202	$442 00	per hour per operator	$0 00	$442 00	
81203	$442 00	per hour per operator	$0 00	$0 00	This is a duplicate of ticket # 81202
81204	$214 00	per hour per operator	$0 00	$214 00	
74972	$214 00	per hour per operator	$0 00	$214 00	
74973	$271 00	per hour per operator	$0 00	$271 00	
81020	$28 50	per hour per operator	$0 00	$28 50	
81208	$214 00	per hour per operator	$0 00	$214 00	
81016	$298 60	per hour per operator	$0 00	$298 60	
81013	$298 60	per hour per operator	$0 00	$298 60	
81182	$179 00	per hour per operator	$0 00	$179 00	
81181	$179 00	per hour per operator	$0 00	$179 00	
81171	$179 00	per hour per operator	$0 00	$179 00	
81207	$314 00	per hour per operator	$0 00	$314 00	
81206	$371 00	per hour per operator	$0 00	$371 00	
81205	$371 00	per hour per operator	$0 00	$371 00	
74978	$371 00	per hour per operator	$0 00	$371 00	
Total	**$5,023.08**		**$0.00**	**$4,581 08**	

Frac Tank Rental

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
81520	$100 00	$350/week	$1500 per tank 7 tanks used for project	$100 00	2 weeks additional rental charge This seems fair since the frac tanks sat onsite for longer than anticipated due to disposal issues
Total	**$100 00**	–	–	**$100.00**	

Building 50 Seperator cleaning and core sampling

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
84984	$2,495 00	--		$2,495 00	
85069	$2,693 83	n/a	--	$2,693 83	Jetting Bldg 50 lines, seperator and sampling
86786	$1,200 00	--	not in bid	$1,200 00	core sample subcontracted to F&K
87501	$2,677 40	--		$2,677 40	core sample subcontracted to F&K
Total	**$9,066.23**	–	–	**$9,066.23**	

Fireline Cleanup

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80002	$8,025 00	per hour per operator	$0 00	$8,025 00	repair of fireline by Orbit S&D
80001	$7,440 34	per hour per operator	$0 00	$7,440 34	F&K expose fireline and help cleanup
76703	$2,466 75	per hour per operator	$0 00	$2,466 75	
76704	$2,214 00	per hour per operator	$0 00	$2,214 00	
76240	$4,093 26	per hour per operator	$0 00	$4,093 26	
Total	**$24,239 35**	–	**$0.00**	**$24,239.35**	

Sampling and Analytical

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
86755	$1,228 50	n/a	not in bid	$1,228 50	analytical from drum storage pad added onto sewer cleanout as per Gary Stanczuk
86787	$1,800 00	n/a	not in bid	$1,800 00	analytical from drum storage pad added onto sewer cleanout as per Gary Stanczuk.
77523	$2,280 00	n/a	not in bid	$2,280 00	
Total	**$5,308 50**	**n/a**	–	**$5,308.50**	

Miscellaneous

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79877	$896 00	n/a	--	$896 00	additional work in south end of Bldg 40, and sampling

77509 $88.87

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

77509	$88 87	n/a	–	$0 00	travel to job site is not to be billed to project
Total	**$984.87**	**n/a**		**$896.00**	

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Decon Frac Tanks.

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80879	$359 38	$0 00	$0 00	$0 00	billing methodology unclear
79683	$2,257 50	$0 00	$0 00	$0 00	
79854	$1,936 51	$0 00	$0 00	$0 00	
79713	$837 51	$0 00	$0 00	$0 00	
80483	$567 00	$0 00	$0 00	$0 00	
80488	$136 00	$0 00	$0 00	$0 00	
Total	**$6,093.90**	**$0.00**	**$0.00**	**$0.00**	

Comments.
- Frac tank decontamination was not included on the LBG Bid Form or on Onyx's Unit Pricing sheet in Onyx's proposal (Section IV) However, decon is required in Section 4 of LBG's Request for Bid Therefore, billing methodology is unclear (i e is decon included in the frac tank rental?)
- Onyx's price is based on hours and hourly rate for personnel Total hours and hourly rate (from Section IV, Unit Pricing sheet) appeared reasonable on all Onyx tickets

Frac Tank Rental

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80003	$15,155 00	$350/week			see below
80381	$650 00	$350/week			
81745	$1,300 00	$350/week			
81749	$650 00	$350/week			
81742	$650 00	$350/week			
81807	$350 00	$350/week			
81538	$1,400 00	$350/week			
81529	$700 00	$350/week			
81536	$350 00	$350/week	$1500 per tank	See comments	
81530	$350 00	$350/week	7 tanks used for	below	
81039	$350 00	$350/week	project		
81024	$350 00	$350/week			
81023	$700 00	$350/week			
80994	$700 00	$350/week			
80993	$350 00	$350/week			
79657	$3,500 00	$350/week			
80987	$350 00	$350/week			
80921	$350 00	$350/week			
80918	$700 00	$350/week			
75952	$2,100 00	$350/week			
78405	$350 00	$350/week			
Total	**$31,355.00**	**$31,355.00**	**$10,500.00**	**$10,500.00**	

Comments
- The Onyx total is based on a weekly frac tank charge of $350/week as listed on Onyx's proposal Unit Pricing sheet (Section IV)
- The above Onyx price appears reasonable based on the weekly rate $31,355 00 equals 7 frac tanks for 12 75 weeks LBG estimates the frac tanks were onsite for 11-14 weeks (depending on delivery date) and therefore is a good estimate of Onyx's charges
- Based on the LBG Bid Form Onyx bid $1500 per frac tank for the project (total estimate was $3000). This may have been based on an estimated project length of ~10 weeks (I e from start date Nov 15, 1999 to end date January 2000) for two frac tanks
- Frac tanks sat onsite longer than Onyx had originally planned due to the time it took to make disposal decisions (especially with regard to the PCB issue)
- The LBG estimated price is based on the LBG Bid Form price of $1500 per frac for the project and 7 frac tanks

Sawcuts

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
84804	$90,000 00	$3000 per sawcut	~$2428 per sawcut for an estimated 12 sawcuts	~$2428 per sawcut	
Total	**$90,000.00**	**$90,000.00**	**$29,140.00**	**$72,840.00**	

Comments
- Onyx bid $2428 per sawcut on lines B, E and K of the LBG Bid Form Onyx estimated 12 sawcuts for the project
- The LBG estimated price is based on the LBG Bid Form price of $2428 multiplied by 30 sawcuts
- The cost per sawcut increased from $2428 to $3000 after Onyx's original subcontractor (K&T) was removed from the site for being non-union Onyx hired Fryman & Kuck to complete the sawcuts On December 8, 1999 Joe Whitlock approved the price increase to $3000 per sawcut to have Fryman & Kuck do sawcutting It is L understanding that Onyx and DaimlerChrysler came to an agreement on the higher cost

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Roll Off Box Rental

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80919	$250 00	$50/week			
80922	$50 00	$50/week			
80990	$100 00	$50/week			
81037	$79 00	$50/week			
81042	$100 00	$50/week			
81046	$50 00	$50/week			
81048	$50 00	$50/week			
76024	$218 75	$50/week	$385 per roll off	$385 per roll off	
80489	$918 00	$50/week		9 roll offs used for	T&M for moving rolloffs as per Plants request.
76014	$62 50	$50/week		project	T&M for moving rolloffs as per Plants request
81532	$100 00	$50/week			
81523	$500 00	$50/week			
81525	$100 00	$50/week			
79654	$100 00	$50/week			
79650	$200 00	$50/week			
79676	$50 00	$50/week			
79677	$50 00	$50/week			
78407	$100 00	$50/week			
Total	**$3,078.25**	**$5,400.00**	**$385.00**	**$3,465.00**	

Comments:
- The Onyx total is based on a weekly charge of $50/week as listed on Onyx's proposal Unit Pricing sheet (Section IV)
- The above Onyx price appears reasonable based on the weekly rate, however the delivery dates and length of time onsite are unknown
- LBG estimated the roll off box rental to be greater than what Onyx is billing This was estimated based on the number of roll offs onsite (9) and the bid price of $385 per roll off
- Note page 9, section 4 13 of the Request For Bid - Job Specifications states that contractor will not charge DaimlerChrysler for material or equipment moved Therefore, tickets #80489 and 76014 should be $0 00

T&M Cleaning and Video

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79552	$736 22	per hour per operator	$0 00	$736 22	
80490	$442 01	per hour per operator	$0 00	$442 01	
81296	$1,077 50	per hour per operator	$0 00	$1,077 50	
80487	$979 64	per hour per operator	$0 00	$979 64	
81706	$295 50	per hour per operator	$0 00	$295 50	
81707	$1,773 00	per hour per operator	$0 00	$1,773 00	
76481	$427 13	per hour per operator	$0 00	$427 13	
80480	$238 01	per hour per operator	$0 00	$238 01	
76706	$1,359.01	per hour per operator	$0 00	$0 00	Should be billed to plant for OR tank cleaning per Joe Whitlock's request and Bldg 53 Press 18 UST removal Decreased # of hours due to flow meter training session
75975	$1,507 00	per hour per operator	$0 00	$1,507 00	Section 4 16 in the Request for Bid states that the Contractor will not use the Project as a training program for any employee
76705	$1,048 89	per hour per operator	$0 00	$878 90	
76138	$167 75	per hour per operator	$0 00	$167 75	
76236	$381 75	per hour per operator	$0 00	$381 75	
76132	$2,299 83	per hour per operator	$0 00	$2,299 83	
76126	$592 00	per hour per operator	$0 00	$592 00	
76128	$130 50	per hour per operator	$0 00	$0 00	Should be billed to the plant because standing water in parking lot was removed per Brit Crider's request
76124	$592 00	per hour per operator	$0 00	$592 00	
Total	**$14,047.74**	**$14,047.74**	**$0.00**	**$12,388.24**	

out? Wait for O

Comments
- Time and Material (T&M) was not part of the original bid Onyx charged their hours at the rates on their Unit Pricing sheet, Section IV These hours appeared reasonable except for those on tickets #76706, #75975 and # 76128.
- It is LBG's understanding that T&M rates were agreed upon between Mike Webb (Onyx) and Gary Stanczuk
- Note All camera work was supposed to be included in the "per foot" price However, it is LBG's understanding that an agreement was made between Onyx and DaimlerChrysler to pay Onyx for additional "investigative" camera work

out? Invoice 174921 -$204 Wait to $ 0

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Sampling and Analytical

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
81291	$663 63	n/a	not in bid	$663 63	Mixing of roll off soils requested by LBG due to inability to sample without a backhoe LBG is unsure if this work was requested by corporate due to the PCB issue in Bldg 50 or if it is part of the standard sewer cleanout
80027	$2,668 25	n/a	not in bid	$0 00	
79465	$3,420 00	n/a	not in bid	$3,420 00	
Total	**$6,751.88**	**n/a**	**$0.00**	**$4,083.63**	

Comments
- Onyx ticket # 81291 appears reasonable based on the hourly unit price stated on their Unit Pricing sheet in Section IV of their proposal
- Onyx ticket # 79465 is only the lab analytical fee

Transportation and Disposal of Chlorinated Solvents (hazardous liquid)

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79767	$5,815 01	n/a	$1 51 /gallon	$5,815 01	3851 gallons
Total	**$5,815.01**	**n/a**	**$5,815.01**	**$5,815.01**	

Comments.
- This dollar amount is consistent with the LBG Bid Form price of $1 51 per gallon for hazardous liquid waste transport and disposal to Suburban RDF

Transportation and Disposal of PCB Oil

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79744	$125 00	$62 50 per hour	$0 00	$0 00	Travel to site is not in bid
80904	$140 62	$62 50 per hour	$0 00	$0 00	Pumping oil into tanker is not in bid
79777	$11,271 00	n/a	$1 51 /gallon	$2,265 00	1500 gallons see comment below (*)
80956	$3,850 00	$0 00	$0 00	$0 00	mileage is not included in bid
Total	**$15,386 62**	**$0.00**	**$2,265.00**	**$2,265.00**	

Comments
- * The rate for disposal of the PCB oil may be reasonable since it had to be brought to Texas . further than was most likely anticipated by Onyx
- The LBG estimated is based on $1 51 per gallon of hazardous liquid disposal, as noted on the LBG Bid Form.
- Is hauling PCB oil to Texas paid by the hour and gallon? And is DC also paying for the disposal facility disposal fee?
- Ticket # 80956 includes mileage returning from Texas This is not listed in the LBG Bid Form or Onyx's Unit Pricing table (Section IV)

Transportation and Disposal of Non-Hazardous Water

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
81846	$1,335 65	n/a	$0 33 per gallon	$1,485 00	4500 gallons
81307	$2,054 90	n/a	$0 33 per gallon	$1,815 00	5500 gallons
81305	$1,765 14	n/a	$0 33 per gallon	$1,650 00	5000 gallons
81646	$1,265 09	n/a	$0 33 per gallon	$1,155 00	3500 gallons
81648	$1,745 96	n/a	$0 33 per gallon	$1,650 00	5000 gallons
81797	$1,226 73	n/a	$0 33 per gallon	$1,320 00	4000 gallons
81798	$1,364 42	n/a	$0 33 per gallon	$2,640 00	9000 gallons
81799	$3,063 80	n/a	$0 33 per gallon	$3,300 00	10000 gallons
81800	$2,875 42	n/a	$0 33 per gallon	$2,805 00	8500 gallons
79546	$1,794 60	n/a	$0 33 per gallon	$1,584 00	4800 gallons
79535	$93 75	n/a	$0 33 per gallon	$0 00	Load ~5000 gallons, T&M not in bid to load truck
81712	$1,619 24	n/a	$0 33 per gallon	$1,551 00	4700 gallons
78417	$370 00	n/a	$0 33 per gallon	$0 00	T&M not in bid to to clean up leaking drums.
79699	$995 00	n/a	$0 33 per gallon	$326 70	18, 55 gallon drums = 990 gallons
82475	$963 69	n/a	$0 33 per gallon	$963 69	unknown gallons $824 75 refers to Ticket # 82475, not a dollar amount. See
82472	$0 00	n/a	$0 33 per gallon	$0 00	tickets 82472 and 82475
Total	**$22,533.39**	**n/a**	**$22,245.39**	**$22,245.39**	

Comments
- Non-Haz water was charged at a rate of $0 33 per gallon for the LBG estimated price
- Onyx used a truck rate and hourly rate to come up with their price It is similar but not exactly the same as LBG's estimated price
- T&M was not included in the bid for non-haz water transport and was removed from the LBG estimate
- Ticket #82472 was added into the Onyx price when in fact it was just referencing ticket #82475, not a dollar amount of $824 75

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

T&M Frac Tank Air Compressors

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
74970	$214 00	hourly rates	$0 00	$0 00	see comments below
74955	$57 00	hourly rates	$0 00	$0 00	
74954	$342 00	hourly rates	$0 00	$0 00	
74953	$342 00	hourly rates	$0 00	$0 00	
81882	$179 00	hourly rates	$0 00	$0 00	
81884	$179 00	hourly rates	$0 00	$0 00	
81885	$179 00	hourly rates	$0 00	$0 00	
74961	$337 00	hourly rates	$0 00	$0 00	
74962	$802 24	hourly rates	$0 00	$0 00	
74963	$179 00	hourly rates	$0 00	$0 00	
74958	$267 88	hourly rates	$0 00	$0 00	
Total	**$3,078.12**	**$3,078.12**	**$0.00**	**$0.00**	

Comments.
- The above Onyx price appears reasonable based on the compressor and employee hourly rates listed in Onyx's Unit Pricing Table (Section IV)
- Time and material was not included on the LBG Bid Form and is therefore not included in the LBG estimated price However, due to very cold conditions and length of time the frac tanks were onsite, Onyx had to bubble the tanks with compressed air to keep them from freezing

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Comments

LBG Summary

- Onyx did not supply any maps or drawings as was requested in Section 3 4 of the Request for Bid - Job Specification and Section I in Onyx's Proposal.
- LBG assumes that Onyx and DaimlerChrysler are working together for payment of work done in the locker room of Building 40, where the fireline was cut It is LBG's understanding that this is a separate issue to the above fees
- A non-union concrete shop (K&T) was hired to perform concrete cutting and excavation work. K&T assured everyone in the prebid meeting that they were union During work in Building 40 the plant union representative discovered that K&T was not a union shop. As a result, K&T was removed from the plant by the plant union representative. Fryman & Kuck were then brought in to finish the excavation at a higher cost These higher costs remained for the duration of the project
- Sewer line sealing is included in the per foot cleaning bid of $7 45 per linear foot. (see Onyx's proposal, Section III).
- Camera work (excluding additional investigative T&M) is included in the per foot cleaning bid of $7 45 per linear foot. (see Onyx's proposal, Section III)

Additional comments

- Onyx had poor health and safety while handling jet/vac hoses, liquids and solids Onyx did, however, make sure that all their employees were clean shaven incase they had to wear a respirator, and they almost always wore their safety glasses and ear plugs Dermal contact with substances and eating without washing up were the biggest areas to be improved upon Onyx had exceptional health and safety while removing the UST in Building 53 They were fully suited in Level A PPE. Their first try took all day with no results
- Onyx worked very well while under the direct supervision of Mike Webb. There were many unproductive hours (totaling days) when Mike Webb was not onsite Poor performance includes, but not limited to standing around talking, disappearing and not being able to be found, making uneducated decisions, not being onsite, taking long lunches
- Onyx was willing to work very strenuous hours at times For example· working all night on the Building 53 Press 18 UST removal, working all night to vac up an oil overflow in Building 53
- Onyx was very considerate to the operations of the plant and did not interfere (intentionally) with plant activities If they did interfere (unintentionally), they moved immediately when asked by LBG or the plant (i e having to move out of the south end of Bldg 40 because the jet truck was blocking the main fire escape aisleway This was the only place the truck could be because the plant had just painted aisleways)
- Onyx made good efforts to properly vent their trucks' exhaust or leave their trucks outside and bring the jet/vac hose in through doorways to avoid filling the buildings with exhaust.
- At times the plant was difficult to work with because they were concerned with who was going to pay for what, who would make a decision, and/or there was poor communication with plant management and maintenance as to when aisleways were being painted and floors being re-coated
- Onyx responded quickly to plant safety concerns (i e fixing a weld on a steel plate that was covering a sawcut immediately after a person tripped on it)
- Onyx was always onsite early, however, they had little daily preparation which led to unproductive early morning downtime The crew did not work well when not under the direct supervision of Jeff Fuston, Mike Webb or John Winters
- Onyx did a very good job cleaning up areas after sawcutting and jetting and vacuuming sewer lines

Items to be added

- Cost for grouting lines
- Additional shipping for haz/non-haz water
- Additional frac tank decon (I e because of PCB issue)
- Cost for final rinsate sample analytical from lines A, B, C and Main in Bldg 50
- Cost for Bldg 50 separator core sampling, analytical, possible removal and/or abandonment

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Itemized Onyx Ticket Grand Totals

Onyx price	LBG estimated price
$108,139.91	**$60,762.27**

Includes everything above except sawcuts

Sewer Cleanout, Feet Cleaned

Onyx's Total Feet Cleaned as per Mike Webb	Measured from LBG "Cleaned Sewers" map
11,917 feet $7 45 per foot	9,171 feet $7 45 per foot
$88,781.65	**$68,323.95**

See ticket #84804 for Onyx's total feet cleaned and camera'd

Number of Sawcuts

Onyx total	LBG total
30 $3000 per sawcut	30 $2428 per sawcut
$90,000.00	**$72,840.00**

Onyx Ticket's Plus Sawcuts and Feet Cleaned Total Cost

Onyx price	LBG estimated price
$286,921.56	$201,926.22

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

T&M Frac Tank Air Compressors

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
74970	$214 00	hourly rates	$0 00	$0 00	see comments below
74955	$57 00	hourly rates	$0 00	$0 00	
74954	$342 00	hourly rates	$0 00	$0 00	
74952	$342 00	hourly rates	$0 00	$0 00	
81882	$179 00	hourly rates	$0 00	$0 00	
81884	$179 00	hourly rates	$0 00	$0 00	
81885	$179 00	hourly rates	$0 00	$0 00	
74961	$337 00	hourly rates	$0 00	$0 00	
74962	$802 24	hourly rates	$0 00	$0 00	
74963	$179 00	hourly rates	$0 00	$0 00	
74958	$267 88	hourly rates	$0 00	$0 00	
Total	**$3,078.12**	**$3,078.12**	**$0.00**	**$0.00**	

Comments
- The above Onyx price appears reasonable based on the compressor and employee hourly rates listed in Onyx's Unit Pricing Table (Section IV)
- Time and material was not included on the LBG Bid Form and is therefore not included in the LBG estimated price However, due to very cold conditions and length of time the frac tanks were onsite, Onyx had to bubble the tanks with compressed air to keep them from freezing

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Sampling and Analytical

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
81291	$663 63	n/a	not in bid	$663 63	Mixing of roll off soils requested by LBG due to inability to sample without a backhoe
80027	$2,668 25	n/a	not in bid	$0 00	LBG is unsure if this work was requested by corporate due to the PCB issue in Bldg 50 or if it is part of the standard sewer cleanout.
79465	$3,420 00	n/a	not in bid	$3,420 00	
Total	**$6,751.88**	**n/a**	**$0.00**	**$4,083.63**	

Comments
- Onyx ticket # 81291 appears reasonable based on the hourly unit price stated on their Unit Pricing sheet in Section IV of their proposal
- Onyx ticket # 79465 is only the lab analytical fee.

Transportation and Disposal of Chlorinated Solvents (hazardous liquid)

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79787	$5,815 01	n/a	$1 51 /gallon	$5,815 01	3851 gallons
Total	**$5,815.01**	**n/a**	**$5,815.01**	**$5,815.01**	

Comments
- This dollar amount is consistent with the LBG Bid Form price of $1 51 per gallon for hazardous liquid waste transport and disposal to Suburban RDF

Transportation and Disposal of PCB Oil

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79744	$125 00	$62 50 per hour	$0 00	$0 00	Travel to site is not in bid
80904	$140 62	$62 50 per hour	$0 00	$0 00	Pumping oil into tanker is not in bid
79777	$11,271 00	n/a	$1 51 /gallon	$2,265 00	1500 gallons see comment below (*)
80956	$3,850 00	$0 00	$0 00	$0 00	mileage is not included in bid
Total	**$15,386.62**	**$0.00**	**$2,265.00**	**$2,265.00**	

Comments
- * The rate for disposal of the PCB oil may be reasonable since it had to be brought to Texas further than was most likely anticipated by Onyx
- The LBG estimated is based on $1 51 per gallon of hazardous liquid disposal, as noted on the LBG Bid Form
- Is hauling PCB oil to Texas paid by the hour and gallon? And is DC also paying for the disposal facility disposal fee?
- Ticket # 80956 includes mileage returning from Texas This is not listed in the LBG Bid Form or Onyx's Unit Pricing table (Section IV)

Transportation and Disposal of Non-Hazardous Water

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
81846	$1,335 65	n/a	$0 33 per gallon	$1,485 00	4500 gallons
81307	$2,054 90	n/a	$0 33 per gallon	$1,815 00	5500 gallons
81305	$1,765 14	n/a	$0 33 per gallon	$1,650 00	5000 gallons
81646	$1,265 09	n/a	$0 33 per gallon	$1,155 00	3500 gallons
81648	$1,745 96	n/a	$0 33 per gallon	$1,650 00	5000 gallons
81797	$1,226 73	n/a	$0 33 per gallon	$1,320 00	4000 gallons
81798	$1,364 42	n/a	$0 33 per gallon	$2,640 00	9000 gallons
81799	$3,063 80	n/a	$0 33 per gallon	$3,300 00	10000 gallons
81800	$2,875 42	n/a	$0 33 per gallon	$2,805 00	8500 gallons
79546	$1,794 60	n/a	$0 33 per gallon	$1,584 00	4800 gallons
79535	$93 75	n/a	$0 33 per gallon	$0 00	Load ~5000 gallons, T&M not in bid to load truck
81712	$1,619 24	n/a	$0 33 per gallon	$1,551 00	4700 gallons
78417	$370 00	n/a	$0 33 per gallon	$0 00	T&M not in bid to to clean up leaking drums
79699	$995 00	n/a	$0 33 per gallon	$326 70	18, 55 gallon drums = 990 gallons
82475	$963 69	n/a	$0 33 per gallon	$963 69	unknown gallons
82472	$0 00	n/a	$0 33 per gallon	$0 00	$824 75 refers to Ticket # 82475, not a dollar amount See tickets 82472 and 82475
Total	**$22,533 39**	**n/a**	**$22,245.39**	**$22,245.39**	

Comments
- Non-Haz water was charged at a rate of $0 33 per gallon for the LBG estimated price
- Onyx used a truck rate and hourly rate to come up with their price It is similar but not exactly the same as LBG's estimated price
- T&M was not included in the bid for non-haz water transport and was removed from the LBG estimate
- Ticket #82472 was added into the Onyx price when in fact it was just referencing ticket #82475, not a dollar amount of $824 75

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Roll Off Box Rental

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80919	$250 00	$50/week			
80922	$50 00	$50/week			
80990	$100 00	$50/week			
81037	$79 00	$50/week			
81042	$100 00	$50/week			
81046	$50 00	$50/week			
81048	$50 00	$50/week			
76024	$218 75	$50/week	$385 per roll off	$385 per roll off	
80489	$918 00	$50/week		9 roll offs used for	T&M for moving rolloffs as per Plants request
76014	$62 50	$50/week		project	T&M for moving rolloffs as per Plants request
81522	$100 00	$50/week			
81523	$500 00	$50/week			
81525	$100 00	$50/week			
79654	$100 00	$50/week			
79650	$200 00	$50/week			
79676	$50 00	$50/week			
79677	$50 00	$50/week			
78407	$100 00	$50/week			
Total	$3,078.25	$5,400.00	$385.00	$3,465.00	

Comments
- The Onyx total is based on a weekly charge of $50/week as listed on Onyx's proposal Unit Pricing sheet (Section IV)
- The above Onyx price appears reasonable based on the weekly rate, however the delivery dates and length of time onsite are unknown
- LBG estimated the roll off box rental to be greater than what Onyx is billing This was estimated based on the number of roll offs onsite (9) and the bid price of $385 per roll off
- Note page 9, section 4 13 of the Request For Bid - Job Specifications states that contractor will not charge DaimlerChrysler for material or equipment moved Therefore, tickets #80489 and 76014 should be $0 00

T&M Cleaning and Video

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79552	$736 22	per hour per operator	$0 00	$736 22	
80490	$442 01	per hour per operator	$0 00	$442 01	
81296	$1,077 50	per hour per operator	$0 00	$1,077 50	
80487	$979 64	per hour per operator	$0 00	$979 64	
81706	$295 50	per hour per operator	$0 00	$295 50	
81707	$1,773 00	per hour per operator	$0 00	$1,773 00	
76481	$427 13	per hour per operator	$0 00	$427 13	
80480	$238 01	per hour per operator	$0 00	$238 01	
76706	$1,359 01	per hour per operator	$0 00	$0 00	Should be billed to plant for OR tank cleaning per Joe Whitlock's request and Bldg 53 Press 18 UST removal Decreased # of hours due to flow meter training session Section 4 16 in the Request for Bid states that the Contractor will not use the Project as a training program for any employee
75975	$1,507 00	per hour per operator	$0 00	$1,507 00	
76705	$1,048 89	per hour per operator	$0 00	$878 90	
76133	$167 75	per hour per operator	$0 00	$167 75	
76236	$381 75	per hour per operator	$0 00	$381 75	
76132	$2,299 83	per hour per operator	$0 00	$2,299 83	
76126	$592 00	per hour per operator	$0 00	$592 00	
76128	$130 50	per hour per operator	$0 00	$0 00	Should be billed to the plant because standing water in parking lot was removed per Brit Crider's request
76124	$592 00	per hour per operator	$0 00	$592 00	
Total	$14,047.74	$14,047.74	$0.00	$12,388.24	

Comments
- Time and Material (T&M) was not part of the original bid Onyx charged their hours at the rates on their Unit Pricing sheet, Section IV These hours appeared reasonable except for those on tickets #76706, #75975 and # 76128
- It is LBG's understanding that T&M rates were agreed upon between Mike Webb (Onyx) and Gary Stanczuk
- Note All camera work was supposed to be included in the "per foot" price However, it is LBG's understanding that an agreement was made between Onyx and DaimlerChrysler to pay Onyx for additional "investigative" camera work

Mike Plante <MPLANTE@lbgmn.com>@lbgmn.com> on 06/15/2000 11:09:21 AM

To: "Stanczuk, Gary" <gms9@daimlerchrysler.com>
cc:

Subject: Dayton billing

Hi Gary,

Attached is the newest "Onyx Ticket Billing Review" spreadsheet. Please discard the previous copies.

Things that are new or changed:

1) Under Transportation and Disposal of Non-Hazardous Water, the Onyx amount for ticket #82472 is now $0.
2) The section "T&M Frac Tank Air Compressors" was added. 11 tickets are now under this heading for a total of $3078.12. This was to keep the frac tanks from freezing. These tickets were stuck in with the fireline break tickets and not on Mike Webb's initial summary sheet which is why they weren't originally included.
3) Onyx's total feet cleaned changed from 12,254 to 11,917. This is still in debate between LBG and Onyx. Mike Webb said he will look at the LBG map during the week of 6/26. LBG sent Mike a map showing the discrepencies (we also sent you the same map).
4) Additional comments are under "Items to be added".

Please call Ken or myself with any questions,
Mike

Michael Plante
Hydrogeologist
Leggette, Brashears & Graham, Inc.
1210 West County Rd E, Suite 700
St. Paul, MN 55112
651-490-1405 x216
fax: 651-490-1006
mplante@lbgmn.com

- sewer_onyx_review.xls

Mike agreed to [redacted] Footage

I owe just the $101,000 + the FO #2 + Disposal of 14 Drums

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Decon Frac Tanks.

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80979	$359 38	$0 00	$0 00	$0 00	billing methodology unclear
79683	$2,257 50	$0 00	$0 00	$0 00	
79854	$1,936 51	$0 00	$0 00	$0 00	
79713	$837 51	$0 00	$0 00	$0 00	
80483	$567 00	$0 00	$0 00	$0 00	
80488	$136 00	$0 00	$0 00	$0 00	
Total	**$6,093.90**	**$0.00**	**$0.00**	**$0.00**	

Comments
- Frac tank decontamination was not included on the LBG Bid Form or on Onyx's Unit Pricing sheet in Onyx's proposal (Section IV) However, decon is required in Section 4 of LBG's Request for Bid Therefore, billing methodology is unclear (i e is decon included in the frac tank rental?)
- Onyx's price is based on hours and hourly rate for personnel Total hours and hourly rate (from Section IV, Unit Pricing sheet) appeared reasonable on all Onyx tickets

Frac Tank Rental

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80003	$15,155 00	$350/week			see below
80381	$650 00	$350/week			
81745	$1,300 00	$350/week			
81743	$650 00	$350/week			
81742	$650 00	$350/week			
81807	$350 00	$350/week			
81532	$1,400 00	$350/week			
81529	$700 00	$350/week			
81536	$350 00	$350/week	$1500 per tank	See comments	
81530	$350 00	$350/week	7 tanks used for	below	
81039	$350 00	$350/week	project		
81024	$350 00	$350/week			
81023	$700 00	$350/week			
80994	$700 00	$350/week			
80993	$350 00	$350/week			
79657	$3,500 00	$350/week			
80987	$350 00	$350/week			
80921	$350 00	$350/week			
80918	$700 00	$350/week			
75952	$2,100 00	$350/week			
78405	$350 00	$350/week			
Total	**$31,355.00**	**$31,355.00**	**$10,500.00**	**$10,500.00**	

Comments
- The Onyx total is based on a weekly frac tank charge of $350/week as listed on Onyx's proposal Unit Pricing sheet (Section IV).
- The above Onyx price appears reasonable based on the weekly rate. $31,355 00 equals 7 frac tanks for 12 75 weeks LBG estimates the frac tanks were onsite for 11-14 weeks (depending on delivery date) and therefore is a good estimate of Onyx's charges
- Based on the LBG Bid Form Onyx bid $1500 per frac tank for the project (total estimate was $3000) This may have been based on an estimated project length of ~10 weeks (I e from start date Nov 15, 1999 to end date January 2000) for two frac tanks
- Frac tanks sat onsite longer than Onyx had originally planned due to the time it took to make disposal decisions (especially with regard to the PCB issue)
- The LBG estimated price is based on the LBG Bid Form price of $1500 per frac for the project and 7 frac tanks

Sawcuts

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
			~$2428 per sawcut for an estimated 12		
84804	$90,000 00	$3000 per sawcut	sawcuts	~$2428 per sawcut	
Total	**$90,000.00**	**$90,000.00**	**$29,140.00**	**$72,840.00**	

Comments
- Onyx bid $2428 per sawcut on lines B, E and K of the LBG Bid Form Onyx estimated 12 sawcuts for the project
- The LBG estimated price is based on the LBG Bid Form price of $2428 multiplied by 30 sawcuts
- The cost per sawcut increased from $2428 to $3000 after Onyx's original subcontractor (K&T) was removed from the site for being non-union Onyx hired Fryman & Kuck to complete the sawcuts On December 8, 1999 Joe Whitlock approved the price increase to $3000 per sawcut to have Fryman & Kuck do sawcutting It is L understanding that Onyx and DaimlerChrysler came to an agreement on the higher cost

9-12-00 Onyx Work Ticket Not on LBG Table.

174171 A ✓

~~74972~~
~~74973~~
~~74977~~
~~74978~~
~~76240~~
~~76703~~
~~76700~~
~~78417~~ / $370
~~80001~~
~~80002~~
~~81013~~
~~81016~~
~~81020~~
~~81111~~
~~81181~~
~~81182~~
~~81202~~
~~81203~~
~~81204~~
~~81205~~
~~81206~~
~~81207~~
~~81208~~
~~81520~~
8.1561 ~ $179
~~81564~~

174658 ✓ ~~77523~~

175221 ✓ ~~86659~~
~~87501~~

174921 ✓ ~~84747~~
~~84783~~
~~84968~~
~~84984~~

174921 ✓ ~~84784~~ Clearing 2495
85069
~~86755~~
~~86786~~
~~86787~~
~~89089~~

174511 ~~78248~~
~~79827~~
~~79952~~ Frac Tank Rental 2,10
~~72186~~
~~77187~~
~~77197~~
~~77496~~
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~~77225~~
~~77226~~
~~77305~~
~~77509~~
~~77566~~
~~77889~~
~~77891~~
~~77892~~
~~77893~~

DaimlerChrysler

FIELD ORDER

Field Order No. ONYX - 1 | Issue Date 11-12-99

Job No. | P.O. Number JYGC 805223

Project Name Rinse Water Disposal | Pant/Site Dayton Thermal

Bulletin No. ONYX - 1 | Contractor's Name Onyx

THIS ORDER TO BE ISSUED FOR CHANGES ONLY

NORMAL SITUATION

(XX) Contractor is hereby authorized to proceed with the scope of work outlined in Construction Bulletin No. ONYX - 1. If not already submitted, contractor must prepare a formal quotation in accordance with the General Condition for Construction Contracts.

EMERGENCY

( ) Proceed at once with the following change in the scope of work. This Field Order will be followed by a Construction Bulletin describing the work in detail. Contractor must prepare a formal quotation within 14 days from issuance and in accordance with the General Conditions for Construction Contracts.

Reason for Emergency Processing _____

_____

DESCRIPTION:

Load, transport, and dispose of rinse water generated from the sewer cleaning activities conducted at the Dayton Thermal Plant.

Total estimated cost for this work is $ 37,234.

Issuance of this Field Order does not indicate approval of a specified dollar amount to cover the scope of work performed. The final cost of this Field Order will be shown on a Purchase Order Change, which will be issued only after submission by contractor of a formal quotation, which has been accepted and agreed to by Pollution Prevention and Remediation and Corporate Purchasing.

Signature: Remediation Specialist/Date

Signature: Director - PP&R/Date

Signature: Supervisor - Environmental Remediation/Date 2/4/00

Signature Financial Specialist/Date 2/4/00

Signature Senior Manager - Environmental Remediation/Date

Signature. Environmental Financial Controller/Date

DaimlerChrysler

CONSTRUCTION BULLETIN

Bulletin No. ONYX - 1 Issue Date 2-4-00

Job No. _____ P.O. Number JYGC 805223

Project Name Rinse Water Disposal Plant/Site Dayton Thermal

Field Order No. ONYX - 1 Contractor's Name Onyx

THIS IS NOT AN ORDER

This is a request for quotation to furnish all labor, material & equipment required for the completion of the work described including all items incidental thereto or necessary to properly complete the work even through not specifically mentioned. The original contract documents and/or specifications applicable shall apply to this bulletin unless otherwise mentioned.

The Contractor shall submit within 14 calendar days his proposal for any change to the contract amount or time of completion as a result of the work described herein.

The following drawings/specifications accompany this Bulletin:

( ) Not Applicable

_____ _____

_____ _____

WORK DESCRIPTION: (To include location, shift overtime, and/or Special Conditions, etc.)

Load, transport, and dispose of rinse water generated from the sewer cleaning activities conducted at the Dayton Thermal Plant.

REASON:
These tasks were not included in the original Purchase Order.

Address Reply to:
DIAMLERCHRYSLER CORPORATION (2) Copies to:

PURCHASING DEPARTMENT **POLLUTION PREVENTION AND REMEDIATION**

_____ _____

_____ _____

_____ _____

Signature Remediation Specialist/Date Signature. Supervisor - Environmental Remediation/Date

ONYX INDUSTRIAL SERVICES, INC.

ONYX

To. Mike Plante, LBG

From: Mike Webb, Onyx Industrial

Date: June 8, 2000

Subject: Dayton Thermal Sewer Map

Mike,

Here is the map of the Dayton Thermal sewer lines that Onyx Industrial Services have cleaned. The footage was determined by scale as well as measured with a wheel. Please review, compare with you maps and give me a call.

Sincerely,

Mike Webb

Mike Webb

937-237-1097
fax: 937-237-1850

cc: Gary Stanczuk

ONYX INDUSTRIAL SERVICES INC.
FORMERLY WAST MNGMNT IND SERV
6151 EXECUTIV BLVD
HUBER HEIGHTS OH 45424

Remit t : ONYX INDUSTRIAL SERVICES IN
P BOX 70610
CHICAG IL 60673-0610
****PAYMENTS ONLY****

Invoic t: CHR001
DAIMLERCHRYSLER CORP A/P
P BOX 537927
LIVONIA MI 48153-7927

48153
Ordered By:
P.O. # : JYGC805223A
Work Desc : CLEAN SEWER LINES

Invoic # : 175599
Invoic Dat: Aug31/2000
Onyx W.O. # : 992293
CONTRACT : JYGC805223A
RELEAS # :
LOCATION- : 5407 DAYTON
VENDOR : 59781
NET 30 DAY : TERMS

Dat	Ite #	Work Tkt	Description	Qty	Unit Pr	Amoun
Jul25/2000	4000014	087502	13-200-0027	14.00	110.00	1,540
Jul25/2000	4000020	087502	DISPOSAL	14.00	560.00	7,840
Jul25/2000	4000022	087502	TRANSPORTIN	1.00	3,850.00	3,850
			Sub-total (Work Ticket: 087502)			13,230
			Invoic Total			13,230.(

13,230.00

ONYX INDUSTRIAL SERVICES, INC.

6151 EXECUTIVE BOULEVARD • DAYTON, OHIO 45424
PHONE 937.237.1097 • FAX 937.237.1850

TIME SHEET

RD 87502

DATE 7/25/00

CUSTOMER: Daimler Chrysler ADDRESS:

P.O. NO.: GATE PASS: PHONE NO:

7993 Project

JS: OJ: LJ: RS: LESS: TOTAL HOURS:

EQUIPMENT	EQUIP. #	NO. HOURS	RATE	AMOUNT
ET				
ID. WASH TRUCK				
VATER BLASTER				
ACTOR				
URBO VAC				
ANKER				
RACTOR				
UMP TRUCK				
RASH PUMP				
UMP TRAILER				
OX TRAILER				
CAMERA UNIT				
BOB CAT				
BACK HOE				
SUPPORT TRUCK				
ELEC. MACHINE				
STEAM CLEANER				
FRAC TANK				
ROLL OFF UNIT				
ROLL OFF BOX				
DRUM VAC				
AIR COMPRESSOR				
GENERATOR				
DISPOSAL FEE		14	560.00	7840 00
CSE EQUIP				
AIR SUPPORT				
POWER DRUMMER				
DEMURRAGE CHARGE				
ULTA - HIGH				
CHEM. RECIRC.				
Transportation				3150 —
			#1 SUBTOTAL ▶	

SUPPLIES	QUAN.	RATE	AMOUNT
RUBBER GLOVES			
RAIN SUIT			
RESPIRATOR CART.			
DUST MASKS			
TYVEK SUIT			
SARANEX SUIT			
CELL DRY			
FLOOR DRY			
MAXI SORB			
ABSORBENT PADS			
SPILL BOOMS			
PLASTIC (ROLL)			
DUCT TAPE			
ROLL OFF LINERS			
ACID SUIT			
EDF			
K-880			
DRUM LINERS			
DRUMS	14	110	1540 —
DISP. BOOTS			
FORK LIFT			
#2 SUBTOTAL ▶			

TECHNICIANS	EQUIP. #	HOURS	RATE	AMOUNT

SUPERVISOR	VEH NO	HOURS	RATE	AMOUNT

MILEAGE — #3 SUBTOTAL ▶

MANIFEST NO.

TOTAL GALS. — #1 SUBTOTAL

LOADING TIME TO — #2 SUBTOTAL

UNLOADING TIME TO — #3 SUBTOTAL

LOCATION & DESCRIPTION — TOTAL ▶ 13230 —

Hauled 14 Drums of TSCA Study to Port Another For disposal

Study From Bldg 50 Separate Project

ONYX REPRESENTATIVE SIGNATURE

CUSTOMER SIGNATURE

ONYX INDUSTRIAL SERVICES, INC.

✓ONYX

FAX TRANSMITTAL

ONYX INDUSTRIAL SERVICES
6151 EXECUTIVE BLVD.
HUBER HEIGHTS, OH 45424

PHONE: 937-237-1097
FAX: 937-237-1850
FAX: 937-237-3669 (ACCOUNTING & SALES)

TO:	Gary Stanczuk
COMPANY:	D.C.
FAX NUMBER:	248-576-7369
DATE:	9/8/00
SUBJECT:	Drum Disposal

FROM:	Mike
NUMBER OF PAGES (INCLUDING COVER):	3

MESSAGE: _____

PROPOSAL

ONYX Industrial Services, Inc.
6151 Executive Blvd
Huber Heights, OH 45424
(937) 237-1097
Fax: (937) 237-1850
Fax: (937) 237-3669 (Accounting & Sales)

00-0116

PROPOSAL SUBMITTED TO:	DESCRIPTION OF JOB:	
DAIMLER CHRYSLER	Job	
800 CHRYSLER DR.	Address	
AUBURN HILLS, MI 48326	City / State	
ATTN: MR. GARY STANCZUK	Phone: 248-576-7365 FAX#248-576-7369	Date: 02/23/2000

We hereby submit specifications and estimates for.

ONYX INDUSTRIAL SERVICES, INC. IS PLEASED TO PROVIDE THE FOLLOWING ESTIMATE TO TRANSPORT AND DISPOSE OF APPROXIMATELY 2,000 GAL. OF PCB CONTAMINATED OIL TO ONYX ENVIRONMENTAL IN PORT ARTHUR, TX FOR INCINERATION.

PRICING IS AS FOLLOWS:

TRANSPORTATION..... $3,850.00

DISPOSAL

1. $.26 PER LB. PCB SECONDARY FUEL>10,000 BTU/LB.
   <29% SOLID, <5% CHLORINE, <1% SULFUR

2. $.51 PER LB. PCB NON-FUEL 3,000-10,000 BTU/LB.
   <5% SOLIDS, <10% CHLORINE, <5% SULFUR

TANKER MINIMUM - $1,800.00
ADDITIONAL FEES $480.00 PER TON (NON-HAZARDOUS, OUT-OF STATE)

IF THE ABOVE PROPOSAL IS ACCEPTABLE, PLEASE SIGN AT THE BOTTOM AND FAX BACK TO 937-237-1850 WITH A PURCHASE ORDER NUMBER SO THAT WE MAY SCHEDULE. IF YOU HAVE ANY QUESTIONS, PLEASE FEEL FREE TO CALL ME. THANK YOU!

We Hereby Propose to furnish labor and materials complete in accordance with above specifications, for the sum of

$ SEE ABOVE

With payment to be made as follows: NET 30 DAYS

Mike Webb

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature MIKE WEBB

Note: This proposal may be withdrawn by us if not accepted within 30 days

ACCEPTANCE OF PROPOSAL— The above prices, specification and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Signature _____

Date Accepted _____ Signature _____

ONYX INDUSTRIAL SERVICES, INC.

ONYX

FAX TRANSMITTAL

ONYX INDUSTRIAL SERVICES
6151 EXECUTIVE BLVD.
HUBER HEIGHTS, OH 45424

PHONE: 937-237-1097
FAX: 937-237-1850
FAX: 937-237-3669 (ACCOUNTING & SALES)

TO:	Gary Stanczuk
COMPANY:	Daimler
FAX NUMBER:	248-576-2369
DATE:	8/30/00
SUBJECT:	Sewer cleaning Project

FROM:	Jeri Dicks & Mike Webb
NUMBER OF PAGES (INCLUDING COVER):	2

MESSAGE: _____

ONYX INDUSTRIAL SERVICES, INC.

ONYX

Daimler Chrysler
800 Chrysler
Auburn Hills, MI
Gary Stanczuk

Gary:
The break down for the first invoice:
30 saw cuts @ $3,000.00 for $90,000.00
2,274 feet cleaned @ $7.45 per foot for $16,941 30
Total $106,941.30

The second invoice:
9,643 feet cleaned @ $7.45 per foot for $71,840.35
Time and material tickets for $26,724.34
Total $98,564.69

The first invoice will put total at original P.O. amount and the second is the additional that requires a change order

Sincerely,

Jeri Dirks.

6151 Executive Blvd., Huber Heights OH 45424 (937) 237-1097 Fax (937) 237-1880 (937) 237-3669 (Accounting)

ONYX INDUSTRIAL SERVICES INC.
FORMERLY WAST MNGMNT IND SERV
6151 EXECUTIV BLVD
HUBER HEIGHTS OH 45424

Remit t : ONYX INDUSTRIAL SERVICES INC.
P BOX 70610
CHICAG IL 60673-0610
****PAYMENTS ONLY****

Invoic t: CHR001
DAIMLERCHRYSLER CORP A/P
P BOX 537927
LIVONIA MI 48153-7927

48153
Ordered By:
P.O. # : JYGC805223A
Work Desc : CLEAN SEWER LINES

Invoic # : 174511B
Invoic Dat: May30/2000
Onyx W.O. # : 992293
CONTRACT : JYGC805223A
RELEAS # : YGPO00212 8
LOCATION- : [redacted] 1102
VENDOR : 59781
NET 30 DAY : TERMS

Dat	Ite #	Work Tkt	Description	Qty	Unit Pr	Amount
APRIL 2000			BALANCE ON THE SEWER CLEANING PROJECT See attached letter for breakdown			$98,564.69

ONYX INDUSTRIAL SERVICES, INC.

✓ONYX

FAX TRANSMITTAL

ONYX INDUSTRIAL SERVICES
6151 EXECUTIVE BLVD.
HUBER HEIGHTS, OH 45424

PHONE: 937-237-1097
FAX: 937-237-1850
FAX: 937-237-3669 (ACCOUNTING & SALES)

TO:	Gary Stanczuk
COMPANY:	Daimler
FAX NUMBER:	248-576-2369
DATE:	8/30/00
SUBJECT:	Sewer cleaning Project

FROM:	Jeri Dicks & Mike Webb
NUMBER OF PAGES (INCLUDING COVER):	2

MESSAGE: _____

ONYX INDUSTRIAL SERVICES INC.
FORMERLY WAST MNGMNT IND SERV
6151 EXECUTIV BLVD
HUBER HEIGHTS OH 45424

Remit t : ONYX INDUSTRIAL SERVICES INC.
P BOX 70610
CHICAG IL 60673-0610
****PAYMENTS ONLY****

Invoic t: CHR001
DAIMLERCHRYSLER CORP A/P
P BOX 537927
LIVONIA MI 48153-7927

48153
Ordered By:
P.O. # : JYGC805223A
Work Desc : CLEAN SEWER LINES

Invoic # : 174511B
Invoic Dat: May30/2000
Onyx W.O. # : 992293
CONTRACT : JYGC805223A
RELEAS # : YGPO00212 8
LOCATION- : [redacted] 1100
VENDOR : 59781
NET 30 DAY : TERMS

Dat	Ite #	Work Tkt	Description	Qty	Unit Pr	Amount
APRIL 2000			BALANCE ON THE SEWER CLEANING PROJECT			$101,072.24

BID FORM

TO: Mr. Keith Coney, CIMS 484-00-04
DaimlerChrysler Corporation
Chrysler Technology Center
800 Chrysler Drive
Auburn Hills, Michigan 48326-2757

FOR: Sump/Sewer-Line/Separator Cleanout, Abandonment, and Disposal of Associated Solids and/or Liquids
DaimlerChrysler Corporation
Dayton Thermal Products Plant
Dayton, Ohio

The undersigned has carefully examined the Request for Bid for sump/sewer line cleanout, abandonment, and disposal of associated solids and/or liquids and other conditions relative to the work, and has made all evaluations and investigations necessary to gain a full understanding of pertinent site conditions and all regulatory, material, equipment, and labor requirements necessary to successfully and safely complete the work, as well as any reasonable difficulties which may be encountered in performing the work.

BID SCHEDULE

The undersigned hereby proposes and agrees to furnish all labor, materials, equipment, tools, permits, licenses, taxes, services and all other items necessary or appropriate for the proper and complete execution of the work for the following estimated amount:

Base Bid Estimate

All work: Two hundred fifty-seven thousand, seven hundred ninty-five dollars Dollars ($257,795.00)

The undersigned agrees, if this proposal is accepted, to enter into an agreement with DaimlerChrysler Corporation, per DaimlerChrysler's Standard Terms and Conditions, for the above unit price-based, Contract Sum.

Unit Prices

This bid is based upon, and all work shall be performed in accordance with, the Unit Prices listed below. Should additions or subtractions to the scope of work be required, adjustment will be made to the Contract Sum at the following Unit Prices, which shall include all associated expenses, including taxes, overhead and profit.

UNIT PRICE TABLE

I.D.	DESCRIPTION	UNIT	EST. QTY	UNIT COST	TOTAL
A.	Mobilize and demobilize equipment and union work crew to/from Dayton, Ohio.	L.S.	1	$500.00	$500.00
B.	Concrete disposal at DaimlerChrysler-approved facility.	Per Ton	5	$108	$540.00
C.	Sewer clean-out using appropriate technology to avoid a release of pipe contents into the subsurface.	L.F.	21,000	$7.45	$156,551
D.	Separator clean-out using appropriate technology.	L.S.	5	$1,000	$5,000
E.	Site Restoration - Wire mesh reinforced concrete	yd^2	10	$1,300	$13,000

F.	Site Restoration - asphalt (match same)	yd^2	10	260	2,600
G.	Non-hazardous liquid waste transport and disposal at DaimlerChrysler-approved facility.	Per Gallon	96,000 EST	$.33	$31,680
H.	Hazardous liquid waste transport and disposal at DaimlerChrysler-approved facility.	Per Gallon	10,000 EST	$1.51	$15,100
I.	Non-hazardous soil transport and disposal at DaimlerChrysler-approved facility.	Per Ton	20 EST	$55.28	$1,105.60
J.	Hazardous soil transport and disposal at DaimlerChrysler-approved facility.	Per Ton	20 EST	$186.67	$3,733.40
K	Sewer access, includes concrete cutting, removal, soil excavation, shoring as needed, boxwork, etc.	L.S.	12	$1,300	$15,600
L.	Level C Personal Protection.	Per Man Per Day	EST XX 3	$50.00	$3,000
M.	Level B Personal Protection.	Per Man Per Day	EST XX 3	$100.00	$6,000
N.	Roll off with liner	per	1	$385.00	$385.00
O.	Frac Tank	per	1	$1,500	$3,000
	TOTAL ESTIMATED BID				

L.S. = Lump Sum
L.F. = Linear Foot
yd^2 = Square Yard

NOTE: Bidder shall provide Unit Prices for all equipment/materials/services on Unit Price Table and shall provide a best-judgement estimate of expected quantities where no quantity is indicated.

PROJECT INITIATION

If awarded this contract, the undersigned bidder proposes and agrees to start work NO LATER THAN NOVEMBER 15, 1999.

PROJECT COMPLETION

If awarded this contract, the undersigned bidder agrees to complete the work NO LATER THAN JANUARY 2000.

ADDENDA RECEIVED (IF REQUIRED)

The undersigned hereby acknowledges receipt of the following Addenda, which shall become part of the Contract Documents:

Addendum Number 1 Dated_____ Addendum Number 2 Dated_____

The Contractor shall acknowledge any Bid Addenda received during the bid process by transferring the date of the Addenda to the appropriate line above and returning a signed copy of this form to DaimlerChrysler Corporation.

DAIMLERCHRYSLER CORPORATION PURCHASE REQUISITION

PAGE 1 OF

REQUISITION NUMBER: YGQP00002

AREA: U.S.A. TYPE: NON-PRODUCTION

DATE REQUIRED:	HOT:	POC:	ORIGINAL PO:	BUYER:	MAXIMUM AUTHORIZED
02-11-00		YES	JYGC805223		37,234.0

SUGGESTED SUPPLIER:
59781 SINGLE SOURCE:
WASTE MANAGEMENT INDL SVCS INC
WASTE MANAGEMENT INC
6151 EXECUTIVE BLVD
HUBER HEIGHTS OH
45424

SHIP TO: YGL
1100 DAIMLERCHRYSLER TECH CTR
800 CHRYSLER DRIVE EAST
AUBURN HILLS, MI 48326-2757

INVOICE TO CODE: YGL

EST. COST: FUNDS: JUSTIF: CANADA: APP:B/C: TOOL CHRG: TOOL EST.: CONTROL #
37234.00 US

ISSUED BY:	LOCATION:	DEPARTMENT:	CIMS:	TELEPHONE:	DATE:
STANCZUK, G.M.	1100	0165	482-00-51	008-776-7365	02-04-00

QUANTITY/UM	ESTIMATED UNIT COST	NPM CODE PART NUMBER	S X *	DESCRIPTION/MISCELLANEOUS ITEM DATA
1 LOT		99-366-0002		LOAD, TRANSPORT, AND DISPOSE OF RINSE WATER GENERATED FROM THE SEWER CLEANING ACTIVITIES CONDUCTED AT THE DAYTON THERMAL PLANT.
			C	1.00 ACT 1230-0009999-0382100
				#8AK543 WO - PROJ 980049 0001

* MISC DATA CODES: A=ASSEMBLY NO C=CHARGES S=SPECIFICATIONS X=COMMTY CODE
B=BLUEPRINTS D=DELIVERY U=UPG(APP)

COMMENTS:

END USER T-ID: (T5493GS)
END USER NAME: (GARY STANCZUK)
LOC: (1100) DEPT: (0165) PH: (2485767365) CIMS:(4820051)
INV APRV T-ID: (T7500RK)
INV APRV NAME: (RAY KRUPA)
LOC: (1100) DEPT: (1282) PH: (2485767335) CIMS:(4820041)
PM: STANCZUK CHARGE UNIT 8AK543 DAYTON
COST NOT TO EXCEED $ 37,234.

A10/F10
RJK
2/4/99

APPROVALS:

LVL	NAME	DATE	LVL	NAME	DATE	LVL	NAME	DATE
A10	[signature]	2/4/00			__/__/__			__/__/__
F10	[signature]	2/4/00			__/__/__			__/__/__

ONYX INDUSTRIAL SERVICES

ONYX

FAX TRANSMITTAL

ONYX INDUSTRIAL SERVICES
6151 EXECUTIVE BLVD.
HUBER HEIGHTS, OH 45424

PHONE: 937-237-1097
FAX: 937-237-1850
FAX: 937-237-3669 (ACCOUNTING & SALES)

TO:	Gary Stanczuk
COMPANY:	Daimler Chrysler
FAX NUMBER:	(248) 576-7369
DATE:	2/1/00
SUBJECT:	Profiles For PCB oil & Rinse Water

FROM:	Mike Webb
NUMBER OF PAGES (INCLUDING COVER):	4

MESSAGE:

msn Hotmail mikewebb82@hotmail.com

Passport

Inbox Compose Addresses Folders Options Help

Compose [Directories | Egreetings™]

To: gms9@daimlerchrysler.com

Subject: Rinse Waters

cc:

bcc:

Save Outgoing Message

Gary,
I have found a second option for disposal of rinse waters. Waste Management Suburban RDF will accept water into their solidification pit to be landfilled. They are requiring a letter that states the chloronated solvents are from a non-listed source, the PCB's are from a non-TSAC source,and all waters are non-hazardous.The price for disposal would be $68.50/ton with a estimate of 437 tons total disposal cost of $29,934.50. The price for transportation would be $365.00/load with a estimated 20 loads for a total transportation cost of $7,300.00. Total cost for transportation and disposal $37,234.50. If you have any questions feel free to give me a call.
thanks,
Mike

Use Stationery [None]

Inbox Compose Addresses Folders Options Help

Hotmail mikewebb82@hotmail.com

Passport sign out

Inbox Compose Addresses Folders Options Help

Compose [Directories | Egreetings™]

To: gms9@daimlerchrysler.com

Subject: Carbon Filter

cc:

bcc:

$83,50 k

86.7 k

☑ Save Outgoing Message

- 900

Gary,
The price for filtering the waters include (1) portable pump @ $35.00/hour, (1) supervisor @ 28.50/ hour, (2) techicians @ 20.00/ hour, and PPE for 70 day $1,000. The total is $8,245.00. The disposal of TSAC waste will be to EQ at $110.00/ drum total of 10 TSCA drums, cost $1100.00. Transportation to EQ will be $680.00. T&D cost $1780.00.
The disposal of non-TSCA waste to Suburban RDF will be $50.00/drum, total of 10 drums, cost $500.00. Transportation to Suburban $365.00. T&D cost $865.00.
Frac tank rental for (2) months $3,000.00
Total project estimate to filter once $ 23,250.00
Any question feel free to give me a call
Thnak, Mike

Use Stationery [None]

Inbox Compose Addresses Folders Options Help

5 - 20,000 fracs @ 30g/min = 11 hrs per frac 55 hrs

7225

59781

Rich Loob

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

PCB Issue

Decon Frac Tanks.

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80979	$359 38	$0 00	$0 00	$0 00	billing methodology unclear
79683	$2,257 50	$0 00	$0 00	$0 00	
79854	$1,936 51	$0 00	$0 00	$0 00	
79713	$837 51	$0 00	$0 00	$0 00	
80483	$567 00	$0 00	$0 00	$0 00	
80488	$136 00	$0 00	$0 00	$0 00	
Total	**$6,093.90**	**$0 00**	**$0.00**	**$0.00**	

Comments
- Frac tank decontamination was not included on the LBG Bid Form or on Onyx's Unit Pricing sheet in Onyx's proposal (Section IV) However, decon is required in Section 4 of LBG's Request for Bid Therefore, billing methodology is unclear (i e is decon included in the frac tank rental?)
- Onyx's price is based on hours and hourly rate for personnel Total hours and hourly rate (from Section IV, Unit Pricing sheet) appeared reasonable on all Onyx tickets

Why isn't this covered under Rental

Frac Tank Rental

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80003	$15,155 00	$350/week			see below
80381	$650 00	$350/week			
81745	$1,300 00	$350/week			
81743	$650 00	$350/week			
81742	$650 00	$350/week			
81807	$350 00	$350/week			
81532	$1,400 00	$350/week			
81529	$700 00	$350/week			
81536	$350 00	$350/week	$1500 per tank	See comments	
81530	$350 00	$350/week	7 tanks used for	below	
81039	$350 00	$350/week	project		
81024	$350 00	$350/week			
81023	$700 00	$350/week			
80994	$700 00	$350/week			
80993	$350 00	$350/week			
79657	$3,500 00	$350/week			
80987	$350 00	$350/week			
80921	$350 00	$350/week			
80918	$700 00	$350/week			
75952	$2,100 00	$350/week			
78405	$350 00	$350/week			
Total	**$31,355.00**	**$31,355.00**	**$10,500 00**	**$10,500.00**	

OK

Comments
- The Onyx total is based on a weekly frac tank charge of $350/week as listed on Onyx's proposal Unit Pricing sheet (Section IV)
- The above Onyx price appears reasonable based on the weekly rate $31,355 00 equals 7 frac tanks for 12 75 weeks LBG estimates the frac tanks were onsite for 11-14 weeks (depending on delivery date) and therefore is a good estimate of Onyx's charges
- Based on the LBG Bid Form Onyx bid $1500 per frac tank for the project (total estimate was $3000) This may have been based on an estimated project length of ~10 weeks (I e from start date Nov 15, 1999 to end date January 2000) for two frac tanks
- Frac tanks sat onsite longer than Onyx had originally planned due to the time it took to make disposal decisions (especially with regard to the PCB issue)
- The LBG estimated price is based on the LBG Bid Form price of $1500 per frac for the project and 7 frac tanks

Sawcuts

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
84804	$90,000 00	$3000 per sawcut	~$2428 per sawcut for an estimated 12 sawcuts	~$2428 per sawcut	
Total	**$90,000.00**	**$90,000.00**	**$29,140 00**	**$72,840.00**	

Comments
- Onyx bid $2428 per sawcut on lines B, E and K of the LBG Bid Form Onyx estimated 12 sawcuts for the project
- The LBG estimated price is based on the LBG Bid Form price of $2428 multiplied by 30 sawcuts
- The cost per sawcut increased from $2428 to $3000 after Onyx's original subcontractor (K&T) was removed from the site for being non-union Onyx hired Fryman & Kuck to complete the sawcuts On December 8, 1999 Joe Whitlock approved the price increase to $3000 per sawcut to have Fryman & Kuck do sawcutting It is L understanding that Onyx and DaimlerChrysler came to an agreement on the higher cost

I don't know why we should I do not recall this.
Pay the extra

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Roll Off Box Rental

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
80919	$250 00	$50/week			
80922	$50 00	$50/week			
80990	$100 00	$50/week			
81037	$79 00	$50/week			
81042	$100 00	$50/week			
81046	$50 00	$50/week			
81048	$50 00	$50/week			
76024	$218 75	$50/week	$385 per roll off	$385 per roll off	
80489	$918 00	$50/week		9 roll offs used for project	T&M for moving rolloffs as per Plants request.
76014	$62 50	$50/week			T&M for moving rolloffs as per Plants request
81522	$100 00	$50/week			
81523	$500 00	$50/week			
81525	$100 00	$50/week			
79654	$100 00	$50/week			
79650	$200 00	$50/week			
79676	$50 00	$50/week			
79677	$50 00	$50/week			
78407	$100 00	$50/week			
Total	**$3,078.25**	**$5,400.00**	**$385.00**	**$3,465.00**	

Comments
- The Onyx total is based on a weekly charge of $50/week as listed on Onyx's proposal Unit Pricing sheet (Section IV)
- The above Onyx price appears reasonable based on the weekly rate, however the delivery dates and length of time onsite are unknown
- LBG estimated the roll off box rental to be greater than what Onyx is billing This was estimated based on the number of roll offs onsite (9) and the bid price of $385 per roll off
- Note page 9, section 4 13 of the Request For Bid - Job Specifications states that contractor will not charge DaimlerChrysler for material or equipment moved Therefore, tickets #80489 and 76014 should be $0 00

T&M Cleaning and Video

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79552	$736 22	per hour per operator	$0 00	$736 22	
80490	$442 01	per hour per operator	$0 00	$442 01	
81296	$1,077 50	per hour per operator	$0 00	$1,077 50	
80487	$979 64	per hour per operator	$0 00	$979 64	
81706	$295 50	per hour per operator	$0 00	$295 50	
81707	$1,773 00	per hour per operator	$0 00	$1,773 00	
76481	$427.13	per hour per operator	$0 00	$427 13	
80480	$238 01	per hour per operator	$0 00	$238 01	
76706	$1,359 01	per hour per operator	$0 00	$0 00	Should be billed to plant for OR tank cleaning per Joe Whitlock's request and Bldg 53 Press 18 UST removal. Decreased # of hours due to flow meter training session
75975	$1,507 00	per hour per operator	$0 00	$1,507 00	Section 4 16 in the Request for Bid states that the Contractor will not use the Project as a training program for any employee.
76705	$1,048 89	per hour per operator	$0 00	$878 90	
76133	$167 75	per hour per operator	$0 00	$167 75	
76236	$381 75	per hour per operator	$0 00	$381 75	
76132	$2,299 83	per hour per operator	$0 00	$2,299 83	
76126	$592 00	per hour per operator	$0 00	$592 00	
76128	$130 50	per hour per operator	$0 00	$0 00	Should be billed to the plant because standing water in parking lot was removed per Bnt Crider's request
76124	$592.00	per hour per operator	$0.00	$592 00	
Total	**$14,047.74**	**$14,047.74**	**$0.00**	**$12,388.24**	

Comments
- Time and Material (T&M) was not part of the original bid Onyx charged their hours at the rates on their Unit Pricing sheet, Section IV These hours appeared reasonable except for those on tickets #76706, #75975 and # 76128
- It is LBG's understanding that T&M rates were agreed upon between Mike Webb (Onyx) and Gary Stanczuk
- Note All camera work was supposed to be included in the "per foot" price However, it is LBG's understanding that an agreement was made between Onyx and DaimlerChrysler to pay Onyx for additional "investigative" camera work

Explain

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Sampling and Analytical

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
81291	$663 63	n/a	not in bid	$663 63	Mixing of roll off soils requested by LBG due to inability to sample without a backhoe
80027	$2,668 25	n/a	not in bid	$0 00	LBG is unsure if this work was requested by corporate due to the PCB issue in Bldg 50 or if it is part of the standard sewer cleanout
79465	$3,420 00	n/a	not in bid	$3,420 00	
Total	**$6,751.88**	**n/a**	**$0.00**	**$4,083.63**	

OK

For what

Comments
- Onyx ticket # 81291 appears reasonable based on the hourly unit price stated on their Unit Pricing sheet in Section IV of their proposal.
- Onyx ticket # 79465 is only the lab analytical fee

Transportation and Disposal of Chlorinated Solvents (hazardous liquid)

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79787	$5,815 01	n/a	$1 51 /gallon	$5,815 01	3851 gallons
Total	**$5,815.01**	**n/a**	**$5,815.01**	**$5,815.01**	

OK

Comments
- This dollar amount is consistent with the LBG Bid Form price of $1 51 per gallon for hazardous liquid waste transport and disposal to Suburban RDF

OK

Transportation and Disposal of PCB Oil

I don't think this was for PCB?

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
79744	$125 00	$62 50 per hour	$0 00	$0 00	Travel to site is not in bid
80904	$140 62	$62 50 per hour	$0 00	$0 00	Pumping oil into tanker is not in bid
79777	$11,271 00	n/a	$1 51 /gallon	$2,265 00	1500 gallons see comment below (*)
80956	$3,850 00	$0 00	$0 00	$0 00	mileage is not included in bid
Total	**$15,386.62**	**$0.00**	**$2,265.00**	**$2,265.00**	

Comments
- * The rate for disposal of the PCB oil may be reasonable since it had to be brought to Texas further than was most likely anticipated by Onyx
- The LBG estimated is based on $1 51 per gallon of hazardous liquid disposal, as noted on the LBG Bid Form
- Is hauling PCB oil to Texas paid by the hour and gallon? And is DC also paying for the disposal facility disposal fee?
- Ticket # 80956 includes mileage returning from Texas. This is not listed in the LBG Bid Form or Onyx's Unit Pricing table (Section IV)

Transportation and Disposal of Non-Hazardous Water

Onyx ticket numbers	Onyx price	Onyx Unit Pricing sheet	LBG Bid Form	LBG estimated price	Comments
81846	$1,335 65	n/a	$0 33 per gallon	$1,485 00	4500 gallons
81307	$2,054 90	n/a	$0 33 per gallon	$1,815 00	5500 gallons
81305	$1,765 14	n/a	$0 33 per gallon	$1,650 00	5000 gallons
81646	$1,265 09	n/a	$0 33 per gallon	$1,155 00	3500 gallons
81648	$1,745 96	n/a	$0 33 per gallon	$1,650 00	5000 gallons
81797	$1,226 73	n/a	$0 33 per gallon	$1,320 00	4000 gallons
81798	$1,364 42	n/a	$0 33 per gallon	$2,640 00	9000 gallons
81799	$3,063 80	n/a	$0 33 per gallon	$3,300 00	10000 gallons
81800	$2,875 42	n/a	$0 33 per gallon	$2,805 00	8500 gallons
79546	$1,794 60	n/a	$0 33 per gallon	$1,584 00	4800 gallons
79535	$93 75	n/a	$0 33 per gallon	$0 00	Load ~5000 gallons, T&M not in bid to load truck
81712	$1,619 24	n/a	$0 33 per gallon	$1,551 00	4700 gallons
78417	$370 00	n/a	$0 33 per gallon	$0 00	T&M not in bid to to clean up leaking drums
79699	$995 00	n/a	$0 33 per gallon	$326 70	18, 55 gallon drums = 990 gallons
X 82475	$963 69	n/a	$0 33 per gallon	$963 69	unknown gallons
X 82472	$824 75	n/a	$0 33 per gallon	$0 00	$824 75 refers to Ticket # 82475, not a dollar amount See tickets 82472 and 82475
Total	**$23,358.14**	**n/a**	**$22,245.39**	**$22,245.39**	

Comments
- Non-Haz water was charged at a rate of $0 33 per gallon for the LBG estimated price
- Onyx used a truck rate and hourly rate to come up with their price It is similar but not exactly the same as LBG's estimated price
- T&M was not included in the bid for non-haz water transport and was removed from the LBG estimate
- Ticket #82472 was added into the Onyx price when in fact it was just referencing ticket #82475, not a dollar amount of $824 75

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Itemized Onyx Ticket Grand Totals

Onyx price	LBG estimated price
$105,886.54	**$60,762 27**

Includes everything above except sawcuts

Sewer Cleanout, Feet Cleaned

Onyx's Total Feet Cleaned as per Mike Webb	Measured from LBG "Cleaned Sewers" map
12,254 feet $7 45 per foot	9,171 feet $7 45 per foot
$91,292.30	**$68,323.95**

See ticket #84804 for Onyx's total feet cleaned and camera'd

11,917

Need to document

Number of Sawcuts

Onyx total	LBG total
30 $3000 per sawcut	30 $2428 per sawcut
$90,000.00	**$72,840.00**

Onyx Ticket Plus Sawcuts and Feet Cleaned Total Cost

Onyx price	LBG estimated price
$287,178.84	$201,926.22

DAYTON SEWER CLEANOUT BILLING
ONYX TICKET REVIEW

Comments

LBG Summary

- Onyx did not supply any maps or drawings as was requested in Section 3 4 of the Request for Bid - Job Specification and Section I in Onyx's Proposal
- LBG assumes that Onyx and DaimlerChrysler are working together for payment of work done in the locker room of Building 40, where the fireline was cut It is LBG's understanding that this is a separate issue to the above fees
- A non-union concrete shop (K&T) was hired to perform concrete cutting and excavation work K&T assured everyone in the prebid meeting that they were union During work in Building 40 the plant union representative discovered that K&T was not a union shop As a result, K&T was removed from the plant by the plant union representative Fryman & Kuck were then brought in to finish the excavation at a higher cost These higher costs remained for the duration of the project
- Sewer line sealing is included in the per foot cleaning bid of $7 45 per linear foot. (see Onyx's proposal, Section III)
- Camera work (excluding additional investigative T&M) is included in the per foot cleaning bid of $7 45 per linear foot (see Onyx's proposal, Section III).

Additional comments nothing to do with my costs

- Onyx had poor health and safety while handling jet/vac hoses, liquids and solids Onyx did, however, make sure that all their employees were clean shaven incase they had to wear a respirator, and they almost always wore their safety glasses and ear plugs. Dermal contact with substances and eating without washing up were the biggest areas to be improved upon Onyx had exceptional health and safety while removing the UST in Building 53 They were fully suited in Level A PPE Their first try took all day with no results.
- Onyx worked very well while under the direct supervision of Mike Webb. There were many unproductive hours (totaling days) when Mike Webb was not onsite Poor performance includes, but not limited to standing around talking, disappearing and not being able to be found, making uneducated decisions, not being onsite, taking long lunches
- Onyx was willing to work very strenuous hours at times For example working all night on the Building 53 Press 18 UST removal, working all night to vac up an oil overflow in Building 53
- Onyx was very considerate to the operations of the plant and did not interfere (intentionally) with plant activities If they did interfere (unintentionally), they moved immediately when asked by LBG or the plant (i e having to move out of the south end of Bldg 40 because the jet truck was blocking the main fire escape aisleway This was the only place the truck could be because the plant had just painted aisleways)
- Onyx made good efforts to properly vent their trucks' exhaust or leave their trucks outside and bring the jet/vac hose in through doorways to avoid filling the buildings with exhaust
- At times the plant was difficult to work with because they were concerned with who was going to pay for what, who would make a decision, and/or there was poor communication with plant management and maintenance as to when aisleways were being painted and floors being re-coated
- Onyx responded quickly to plant safety concerns (i e fixing a weld on a steel plate that was covering a sawcut immediately after a person tripped on it)
- Onyx was always onsite early, however, they had little daily preparation which led to unproductive early morning downtime The crew did not work well when not under the direct supervision of Jeff Fustor, Mike Webb or John Winters
- Onyx did a very good job cleaning up areas after sawcutting and jetting and vacuuming sewer lines

?

DaimlerChrysler

FIELD ORDER

RICK
SEE ATTACHED
Kevin
11/3

Field Order No. ONYX - 1 Issue Date 11-12-99

Job No. _____ P.O. Number JYGC 805223

Project Name Rinse Water Disposal Pant/Site Dayton Thermal

Bulletin No. ONYX - 1 Contractor's Name Onyx

THIS ORDER TO BE ISSUED FOR CHANGES ONLY

NORMAL SITUATION

(XX) Contractor is hereby authorized to proceed with the scope of work outlined in Construction Bulletin No. ONYX - 1. If not already submitted, contractor must prepare a formal quotation in accordance with the General Condition for Construction Contracts.

EMERGENCY

( ) Proceed at once with the following change in the scope of work. This Field Order will be followed by a Construction Bulletin describing the work in detail. Contractor must prepare a formal quotation within 14 days from issuance and in accordance with the General Conditions for Construction Contracts.

Reason for Emergency Processing _____

DESCRIPTION:

Load, transport, and dispose of rinse water generated from the sewer cleaning activities conducted at the Dayton Thermal Plant.

Total estimated cost for this work is $ 37,234.

Issuance of this Field Order does not indicate approval of a specified dollar amount to cover the scope of work performed. The final cost of this Field Order will be shown on a Purchase Order Change, which will be issued only after submission by contractor of a formal quotation, which has been accepted and agreed to by Pollution Prevention and Remediation and Corporate Purchasing.

Signature: Remediation Specialist/Date

Signature: Director - PP&R/Date

Signature: Supervisor - Environmental Remediation/Date 2/4/00

Signature: Financial Specialist/Date 2/4/00

Signature: Senior Manager - Environmental Remediation/Date

Signature: Environmental Financial Controller/Date

BID FORM

TO: Mr. Keith Coney, CIMS 484-00-04
DaimlerChrysler Corporation
Chrysler Technology Center
800 Chrysler Drive
Auburn Hills, Michigan 48326-2757

FOR: Sump/Sewer-Line/Separator Cleanout, Abandonment, and Disposal of Associated Solids and/or Liquids
DaimlerChrysler Corporation
Dayton Thermal Products Plant
Dayton, Ohio

The undersigned has carefully examined the Request for Bid for sump/sewer line cleanout, abandonment, and disposal of associated solids and/or liquids and other conditions relative to the work, and has made all evaluations and investigations necessary to gain a full understanding of pertinent site conditions and all regulatory, material, equipment, and labor requirements necessary to successfully and safely complete the work, as well as any reasonable difficulties which may be encountered in performing the work.

BID SCHEDULE

The undersigned hereby proposes and agrees to furnish all labor, materials, equipment, tools, permits, licenses, taxes, services and all other items necessary or appropriate for the proper and complete execution of the work for the following estimated amount:

Base Bid Estimate

All work: Two hundred fifty-seven thousand, seven hundred ninty-five dollars Dollars ($257,795.00)

The undersigned agrees, if this proposal is accepted, to enter into an agreement with DaimlerChrysler Corporation, per DaimlerChrysler's Standard Terms and Conditions, for the above unit price-based, Contract Sum.

Unit Prices

This bid is based upon, and all work shall be performed in accordance with, the Unit Prices listed below Should additions or subtractions to the scope of work be required, adjustment will be made to the Contract Sum at the following Unit Prices, which shall include all associated expenses, including taxes, overhead and profit.

UNIT PRICE TABLE

I.D.	DESCRIPTION	UNIT	EST. QTY	UNIT COST	TOTAL
A.	Mobilize and demobilize equipment and union work crew to/from Dayton, Ohio.	L.S.	1	$500.00	$500.00
B.	Concrete disposal at DaimlerChrysler-approved facility.	Per Ton	5	$108 / 73	$540.00
C.	Sewer clean-out using appropriate technology to avoid a release of pipe contents into the subsurface.	L.F.	21,000	$7.45 / 4.01	$156,551
D.	Separator clean-out using appropriate technology.	L.S.	5	$1,000	$5,000
E.	Site Restoration - Wire mesh reinforced concrete	yd^2	10	$1,300 / 125	$13,000

F.	Site Restoration - asphalt (match same)	yd^2	10	260	2,600
G.	Non-hazardous liquid waste transport and disposal at DaimlerChrysler-approved facility. is this on-site disp.?	Per Gallon	96,000 EST	$.33	$31,680
H.	Hazardous liquid waste transport and disposal at DaimlerChrysler-approved facility.	Per Gallon	10,000 EST	$1.51	$15,100
I.	Non-hazardous soil transport and disposal at DaimlerChrysler-approved facility.	Per Ton	20 EST	$55.28	$1,105.60
J.	Hazardous soil transport and disposal at DaimlerChrysler-approved facility.	Per Ton	20 EST	$186.67	$3,733.40
K	Sewer access, includes concrete cutting, removal, soil excavation, shoring as needed, boxwork, etc.	L.S.	12	$1,300 1587	$15,600
L.	Level C Personal Protection.	Per Man Per Day	EST ~~XX~~ 3	$50.00	$3,000
M.	Level B Personal Protection.	Per Man Per Day	EST ~~XX~~ 3	$100.00	$6,000
N.	Roll off with liner	per	1	$385.00	$385.00
O.	Frac Tank	per	1	$1,500	$3,000
	TOTAL ESTIMATED BID				

L.S. = Lump Sum
L.F. = Linear Foot
yd^2 = Square Yard

NOTE: Bidder shall provide Unit Prices for all equipment/materials/services on Unit Price Table and shall provide a best-judgement estimate of expected quantities where no quantity is indicated.

- 10 HR DAYS, 3 SHIFTS SAME RATE

PROJECT INITIATION

If awarded this contract, the undersigned bidder proposes and agrees to start work NO LATER THAN NOVEMBER 15, 1999.

PROJECT COMPLETION

If awarded this contract, the undersigned bidder agrees to complete the work NO LATER THAN JANUARY 2000.

ADDENDA RECEIVED (IF REQUIRED)

The undersigned hereby acknowledges receipt of the following Addenda, which shall become part of the Contract Documents:

Addendum Number 1 Dated_____ Addendum Number 2 Dated_____

The Contractor shall acknowledge any Bid Addenda received during the bid process by transferring the date of the Addenda to the appropriate line above and returning a signed copy of this form to DaimlerChrysler Corporation.

Unit Pricing	Tanker w/ Operator	$62.50/hr
	Jet w/ Operator	$62.50/hr
	Video Inspection w/ Operator	$80.00/hr
	Support Truck w/ Operator	$25.00/hr
	Frac Tank Rental	$350.00/week
	Spotting Charge	$100.00/trip
	Turbo Vacuum w/ Operator	$85.00/hr
	Cable Machine w/ Operator	$38.50/hr
	Roll Off Box Rental	$50.00/week
	Air Compressor	$25.00/hr
	Site Supervisor	$28.50/hr
	Site Safety Supervisor	$35.00/hr
	Technician	$21.00/hr
	By Pass 6" Tuck Pump	$45.00/hr
	Video Tape	$10.00/tape
	Confined Space Entry	$300.00/day

LEGGETTE, BRASHEARS & GRAHAM, INC.

PROFESSIONAL GROUND-WATER
AND ENVIRONMENTAL ENGINEERING SERVICES

1210 WEST COUNTY ROAD E
SAINT PAUL, MN 55112

(651) 490-1405 FAX (651) 490-1006

DATE: 8/18/00

PAGES: 2
(Includes cover page)

TO: Kevin Killebrew **FAX #:** (248) 576-7369

COMPANY: DCC

TO: **FAX #:**

COMPANY:

TO: **FAX #:**

COMPANY:

FROM: Ken Vogel

RE: Unpaid June Invoices

Kevin, attached is a spreadsheet w/ unpaid June invoices and info. Could you please check on status?

Thanks!
Ken

Please contact Kathleen Weinrich (651) 490-1405 if transmission is incomplete or can not be read.

fax TRANSMITTAL

EDI INVOICE SUMMARY
ALL DAIMLERCHRYSLER PROJECTS

Site Name	Site Code	Daimler Chrysler PM	LBG Invoice #	Invoice Date	Invoice Amount	Purchase Order #	Lot Item #	Requisition Number	EDI Date	Paid Date
ADRMS		Curry				JYGC405443	993660001	YGQP-2326		
BARK RIVER	SF127	Beaujon	0820026	7/31/00	$2,746.65	JYGC404864	99366S	YGQP-2302	8/10/00	
			0720037	6/30/00	$475 04	JYGC404864	99366S	YGQP-2302	8/6/00	
PROPERTIES			0620065	5/31/00	$207.51	JYG5403318	993660019S	YGQP-2058	6/13/00	7/24/00
DAYTON	SC001	Stanczuk	0820027	7/31/00	$18,783.39	JYGC401567	993660020	YGQP-2182	8/10/00	
THERMAL			0820027	7/31/00	$9,021 00	JYGC401567	993660022	YGQP-2215	8/10/00	
			0820027	7/31/00	$16,326.00	JYGC401567	993660017	YGQP-2063	8/10/00	
			0820027	7/31/00	$5,600 00	JYGC401567	993660024	YGQP-2238	8/10/00	
			0720038	6/30/00	$5,396.19	JYGC401567	993660018	YGQP-2093	7/13/00	
			0720038	6/30/00	$8,021 00	JYGC401567	993660022	YGQP-2215	7/13/00	
			0720038	6/30/00	$12,600.00	JYGC401567	993660017	YGQP-2063	7/13/00	
			0720038	6/30/00	$22,075.93	JYGC401567	993660024	YGQP-2238	7/13/00	
			0720038	6/30/00	$15,663 22	JYGC401567	993660020	YGQP-2182	7/13/00	
			0620095	5/31/00	$25,606 62	JYGC401567	993660018	YGQP-2093	6/15/00	8/14/00
			0620095	5/31/00	$12,162 00	JYGC401567	993660022	YGQP-2215	6/15/00	8/14/00
			0620095	5/31/00	$10,100 00	JYGC401567	993660017	YGQP-2063	6/15/00	8/14/00
			0620095	5/31/00	$5,600 00	JYGC401567	993660024	YGQP-2238	6/15/00	8/14/00
EPC	SC002	Beaujon	0820030	7/31/00	$7,356 53	JYGC404135	99366S	YGQP-2106	8/10/00	
			0720047	6/30/00	$1,373.04	JYGC404135	99366S	YGQP-2106	7/18/00	
			0620092	5/31/00	$857 09	JYGC404135	99366S	YGQP-2106	8/9/00	7/10/00
HARTFORD	SF126	Beaujon	0699539	5/31/99	$5,000 00	JYGC403691	99366S	YGQP-2047	6/25/99	8/9/99
LANDFILL										
HUNTSVILLE	SC003	Stanczuk	0820025	7/31/00	$23,337 91	JYGC402453	993660008	YGQP-2233	8/10/00	
			0720036	6/30/00	$20,845.90	JYGC402453	993660006	YGQP-2233	7/12/00	8/14/00
			0720036	6/30/00	$454.50	JYGC402453	993660005	YGQP-2181	7/12/00	8/14/00
KECK FARM	SF002	Beaujon	0720454	6/30/00	$7,998.00	JYGC404557	99366S	YGQP-2177	7/26/00	8/18/00
			0720455	6/30/00	$13 281.85	JYGC405090	99366S		7/26/00	8/18/00
			0620426	5/31/00	$13,633.19	JYGC404557	99366S	YGQP-2177	6/26/00	
MOUND ROAD	SC008	Stanczuk	0820031	7/31/00	$1,000.00	JYGC402716	99-366-0003		8/10/00	
			0720048	6/30/00	$800.00	JYGC402718	99-366-0003		7/24/00	8/14/00
			0720048	6/30/00	$10,352 71	JYGC402718	99-366-0004		7/24/00	8/14/00
NEWARK	SC021	Stanczuk	0820037	7/31/00	$4,660.58	JYGC403903	993660007	YGQP-2071	8/10/00	
ASSEMBLY			0820035	7/31/00	$7,600.00	JYGC401167	993660005S	YGQP-1941	8/10/00	
			0820036	7/31/00	$6,147 76	JDAC604476	99-365-S	DAF2490500	8/10/00	
			0720039	6/30/00	$5,089.21	JYGC403903	993660007	YGQP-2071	7/12/00	8/3/00
			0720039	6/30/00	$7,800 00	JYGC401167	993660005S	YGQP-1941	7/12/00	8/3/00
NEWARK	SC026	Fuller	0999057	8/31/99	$164 64	JMPC403674	99366	MPFE3059300	9/10/99	11/8/99
PARTS DEPOT			0999050	7/31/99	$1,511 73	JMPC403674	99366	MPFE3059300	8/9/99	9/2/99
NORTH COVE	SF037	Beaujon	0720311	6/30/00	$761 30	JYGC404518	99366	YGQP-2153	7/28/00	8/18/00
LANDFILL			0620324	5/31/00	$4,052 70	JYGC404518	99366	YGQP-2153	6/27/00	7/24/00
SCHMIDT	SF125	Beaujon	0820028	7/31/00	$1,468.90	JYGC404556	99366S	YGQP-2176	8/10/00	
HOLE #2			0720040	6/30/00	$1,561 23	JYGC404556	99366S	YGQP-2176	7/12/00	8/3/00
			0620066	5/31/00	$1,465 98	JYGC404556	99366S	YGQP-2176	6/13/00	7/24/00
SHAP	SC084	Stanczuk	0820032	7/31/00	$375 05	JYGC401982	993660003		8/10/00	
(STESSY)			0720049	6/30/00	$2,036.19	JYGC401982	993660003		7/18/00	8/14/00
SHVTC	SC037	Stanczuk	1097222	9/29/97	$6,536.76	JYGC400887	993660001S	YGQP-1735	10/21/97	11/10/97
STERLING	SC049	Stanczuk	0820033	7/31/00	$2,706.37	JYGC401384	993660003		8/10/00	
STAMPING			0720050	6/30/00	$1,500.00	JYGC401384	993660002		7/19/00	
			0720050	6/30/00	$3,800.99	JYGC401384	993660003		7/19/00	
			0520265	4/30/00	$8,000 00	JYGC401384	993660002		5/18/00	7/3/00
			0520265	4/30/00	$7,242.90	JYGC401384	993660003		5/18/00	7/3/00
TIRABASSI	SF058	Beaujon	0720312	6/30/00	$314.38	JYGC404641	99366S	YGQP2196	7/28/00	
LANDFILL			0620325	5/31/00	$65.33	JYGC404641	99366S	YGQP2196	6/27/00	7/24/00
TWINSBURG	SC048	Stanczuk	0599006	4/30/99	$6,561.34	JYGC401441	993660002		5/7/99	6/24/99
WARREN	SC085	Stanczuk	0820034	7/31/00	$11,725 02	JYGC402380	993660005		8/10/00	
STAMPING			0720051	6/30/00	$4,523.32	JYGC402380	993660005		7/19/00	8/14/00
STAMPING			0620033	5/31/00	$10,988.60	JYGC402380	993660005		6/9/00	8/3/00
WARREN	SC086	Stanczuk	0820029	7/31/00	$38,181 03	JYGC401293	993660013		8/10/00	
DODGE TRUCK			0720046	6/30/00	$655.00	JYGC401293	993660011S		7/19/00	
			0720046	6/30/00	$24,406.79	JYGC401293	993660007		7/19/00	
			0620031	5/31/00	$18,019 78	JYGC401293	993660013		6/9/00	8/3/00

C:\My Documents\

Reset Code 6025

COPY WORK ORDER

FELTZ OFFICE APPLIANCES, INC. • 3880 KETTERING BLVD. • DAYTON, OH 45439 • 513-294-5311

NAME Attn. Mike Bostrud, LBG, Inc.
ADDRESS 1210 West County Rd. E, Suite 700.
CITY St. Paul, MN 55112

DATE 8-14 1997
PHONE NO. 612-490-1405
PURCHASE ORDER # 3CHRY4/DAYTON

BEGINNING COPY COUNT	ENDING COPY COUNT	TOTAL COPIES
11339	11689	350

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT

AUTHORIZED BY S. Bodwell SIGNATURE Michael J. Bostrud

OhioEPA
State of Ohio Environmental Protection Agency

Southwest District Office

401 East Fifth Street
Dayton, OH 45402-2911

TELE: (937) 285-6357 FAX: (937) 285-6249

George V. Voinovich, Governor
Nancy P. Hollister, Lt. Governor
Donald R Schregardus, Director

July 11, 1997

RE: HOHMAN PLATING
MONTGOMERY COUNTY
HAZARDOUS WASTE
OHD 004278362

Mr. William T. Miller, CEF
Vice President
Hohman Plating & Manufacturing, Inc.
814 Hillrose Avenue
Dayton, Ohio 45404

Dear Mr. Miller:

On March 6, 1997, Paul Pardi, Group Leader of DHWM, SWDO and myself met with you and Mr. Kevin McMurray, attorney for Hohman, to investigate claims that hazardous waste handling procedures and/or practices during the mid-to-late 1980's have led to gross contamination of soil under and around the Hohman Plating facility, Dayton, Ohio. After this initial meeting, the Ohio EPA continued its investigation into these claims by reviewing records such as historical site sampling and soil removal information, historical and current engineering design and construction drawings for the facility, and waste removal records. The investigation also involved several site inspections, and the collection of soil samples for laboratory analysis. This correspondence is written to document the results of the Ohio EPA's investigation.

The Ohio EPA has concluded that there is no current evidence that supports the allegations that activities at the Hohman Plating facility have resulted in gross contamination under and around the site. This conclusion is based mainly on the following information:

1. As a result of construction activities in the "old strip room", soil samples were collected by Hayden Environmental Group, Inc., on January 5, 1990. These samples were analyzed for the EP Toxic metals. The analytical results indicated that concentrations of these metals were below the regulatory levels established in the state and federal hazardous waste regulations. The levels detected are inconsistent with contaminant levels that would be found in soils that have been heavily contaminated with plating wastes.

2. As a result of construction activities for the "Harrison line" at the Hohman facility in February and March of 1993, soil was excavated, sampled, and ultimately disposed. Civil and Environmental Consultants, Inc. collected soil samples , and Data Chem Laboratories analyzed the samples. No volatile organic compounds were detected, and metals concentrations were below regulatory levels. The excavated soil was accepted for disposal at the ELDA solid waste landfill in Cincinnati. Ultimately an estimated 150 cubic yards of soil were disposed at ELDA. The analytical results and the acceptance of this material by ELDA indicate that this soil was not heavily contaminated with plating wastes.

3. A wastewater line break which occurred in March of 1997 provided the opportunity for the collection of samples representative of soil beneath the facility. On March 24, 1997, I collected a representative sample of the soil removed from the area of this line break. Hohman received an identical sample for its own analysis. The results of the analysis showed that no volatile organic compounds were present. Concentrations of cadmium, chromium and lead

Hohman Plating & Mfg., Inc.

814 HILLROSE AVENUE • DAYTON, OHIO 45404 • TELEPHONE 937-228-2191
FAX 937-228-5171

May 22, 1997

Mr. Paul D Pardi
Mr. George Nemore, Jr
Division of Hazardous Waste Management
Ohio EPA
Southwest District Office
401 East Fifth Street
Dayton, Ohio 45402-2911

Re: Analytical Results

Dear Paul and George,

In follow-up to our recent discussion, I have enclosed laboratory analytical results on soil samples collected at our facility on March 24, 1997 and April 29, 1997. Soil samples were collected along the outside of the barrel building and from the roll-off box on March 24. These samples were collected by representatives of Hohman Plating, along with representatives of Ohio EPA, and analyzed for VOCs and metals per your request. We utilized Lockwood Laboratories to analyze the samples.

None of the metals' results appear to be elevated in any of the samples analyzed. These results are within what we understand to be a typical range for background concentrations of metals in soils in an area such as ours. However, as we discussed, Lockwood's results reported VOCs in all of the March 24 samples. We believed these results were incorrect and were probably the result of laboratory error. To prove this, as you know, on April 29 we collected additional soil samples from one of the locations where a sample had been collected previously (outside of the barrel building) and had them analyzed for VOCs by three separate laboratories (Lockwood, Belmonte Park Environmental Laboratories and Advanced Analytics Laboratories). George was present when we collected the samples on April 29. As the enclosed results show, only Lockwood reported any VOCs in the analysis of these samples. We then asked Lockwood to investigate the discrepancy in these results. Lockwood's response is enclosed In short, Lockwood has determined that our samples were contaminated by other samples in its lab and, therefore, its VOC analyses were in error and do not accurately reflect site conditions with respect to the presence of VOCs in the soils

We appreciate the Agency sending us a copy of the laboratory results on the samples it collected on March 24. The Agency's results compare favorably with ours and also confirm that Lockwood's original VOC results were in error. Thus, we believe that the results of our testing and the Agency's indicate that there is no VOC or metals contamination in the areas investigated.

If you have any questions concerning this matter, please do not hesitate to contact me.

Sincerely,

HOHMAN PLATING & MFG., INC.

William T. Miller

William T Miller
Vice President

Enclosures
p \novoc doc

Belmonte Park
Environmental
Laboratories

HOHMAN PLATING
814 HILLROSE AVE.
DAYTON, OHIO 45404

Attn: BILL MILLER
Invoice Number:

Order #: 97-05-006
Date: 05/09/97 09:23
Work ID: 39107-213 (FAX)
Date Received: 04/30/97
Date Completed: 05/08/97
Client Code: HOHMAN

SAMPLE IDENTIFICATION

Sample Number	Sample Description		Sample Number	Sample Description
01	39107-213	04/29 0927		

Enclosed are results of specified samples submitted for analysis. If there are any questions, please contact Tom Batten. Our Ohio EPA Certification numbers are 836 & 837. Any result of "BDL" indicates "BELOW DETECTION LIMIT".

Certified By
TOM BATTEN

Belmonte Park
Environmental
Laboratories

TEST RESULTS BY SAMPLE

Sample Description: 39107-213 04/29 0927 Lab No: 01A
Test Description: VOLATILE ORGANICS 8260 Method: SW_846_8260 Test Code: SW8260
Collected: 04/29/97 Category: SOIL

PARAMETER	RESULT	LIMIT
ACETONE	BDL	100
ACROLEIN	BDL	20
ACRYLONITRILE	BDL	20
BENZENE	BDL	5
BROMODICHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
BROMOMETHANE	BDL	10
2-BUTANONE	BDL	100
CARBON DISULFIDE	BDL	100
CARBON TETRACHLORIDE	BDL	5
CHLOROBENZENE	BDL	5
CHLORODIBROMOMETHANE	BDL	5
CHLOROETHANE	BDL	10
2-CHLOROETHYL VINYL ETHER	BDL	20
CHLOROFORM	BDL	5
CHLOROMETHANE	BDL	10
DIBROMOMETHANE	BDL	5
1,4-DICHLORO-2-BUTENE	BDL	100
DICHLORODIFLUOROMETHANE	BDL	10
1,1-DICHLOROETHANE	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1-DICHLOROETHENE	BDL	5
trans-1,2-DICHLOROETHENE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
cis-1,3-DICHLOROPROPENE	BDL	5
trans-1,3-DICHLOROPROPENE	BDL	5
ETHYLBENZENE	BDL	5
ETHYL METHACRYLATE	BDL	50
2-HEXANONE	BDL	50
IODOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	10
4-METHYL-2-PENTANONE	BDL	50
STYRENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TETRACHLOROETHENE	BDL	5
TOLUENE	BDL	5

Belmonte Park
Environmental
Laboratories

TEST RESULTS BY SAMPLE

Sample Description: 39107-213 04/29 0927 Lab No: 01A
Test Description: VOLATILE ORGANICS 8260 Method: SW_846_8260 Test Code: SW8260
Collected: 04/29/97 Category: SOIL

1,1,1-TRICHLOROETHANE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
TRICHLOROETHENE	BDL	5
TRICHLOROFLUOROMETHANE	BDL	5
1,2,3-TRICHLOROPROPANE	BDL	5
VINYL ACETATE	BDL	50
VINYL CHLORIDE	BDL	10
XYLENE	BDL	10

SURROGATE	%RECOVERY	LIMITS
d4-1,2-DICHLOROETHANE	106	86 - 115
d8-TOLUENE	102	86 - 118
4-BROMOMFLUOROBENZENE	100	88 - 110

Notes and Definitions for this Report:

DATE RUN 05/08/97
ANALYST CG
INSTRUMENT GC/MS
FILE ID V7050806
UNITS ug/Kg
METHOD EPA 8260
BDL BELOW DETECTION LIMIT

ADVANCED ANALYTICS LABORATORIES, INC.
1025 CONCORD AVENUE
COLUMBUS, OHIO 43212
(614) 299-9922 FAX (614) 299-4002
Analysis & Testing - Quality Control Programs - Research & Development

May 12, 1997

Springfield Environmental, Inc.
P.O. Box 2728, 1001 East Street
Springfield, OH 45501
ATTN: Ed Lockwood

AALI ORDER ID: 3959
APPROVAL #: EPA Certification 4043
CLIENT PROJECT: Holman Plating
CLIENT PO NO.:

DATE COLLECTED: 4/29/97
DATE RECEIVED: 4/30/97
DATE ANALYZED: 5/9/97
DATE REPORTED: 5/12/97

TEST RESULTS

Test Method: 8240/8260
AALI Sample No.: 20981 Client Sample ID: 39107-213

Compound		Result	Detection Limit
1,1,1-Trichloroethane	<	5 µg/kg	5
1,1,2,2-Tetrachloroethane	<	5 µg/kg	5
1,1,2-Trichloroethane	<	5 µg/kg	5
1,1-Dichloroethane	<	5 µg/kg	5
1,1-Dichloroethene	<	5 µg/kg	5
1,2-Dichlorobenzene	<	5 µg/kg	5
1,2-Dichloroethane	<	5 µg/kg	5
1,2-Dichloropropane	<	5 µg/kg	5
1,3-Dichlorobenzene	<	5 µg/kg	5
1,4-Dichlorobenzene	<	5 µg/kg	5
2-Chloroethyl Vinyl Ether	<	10 µg/kg	10
Acrolein	<	100 µg/kg	100
Acrylonitrile	<	100 µg/kg	100
Benzene	<	5 µg/kg	5
Bromodichloromethane	<	5 µg/kg	5
Bromoform	<	10 µg/kg	10
Bromomethane	<	10 µg/kg	10
Carbon tetrachloride	<	5 µg/kg	5
Chlorobenzene	<	5 µg/kg	5
Chloroethane	<	10 µg/kg	10
Chloroform	<	5 µg/kg	5
Chloromethane	<	10 µg/kg	10

ADVANCED ANALYTICS LABORATORIES, INC.
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Analysis & Testing - Quality Control Programs - Research & Development

Gas Chromatography - Infra-red Spectroscopy - Ultraviolet-visible Spectrophotometry - Atomic Absorption Spectrophotometry

TEST RESULTS

Test Method: 8240/8260

AALI Sample No.: 20981 **Client Sample ID:** 39107-213

Compound		Result	Detection Limit
cis-1,3-Dichloropropene	<	5 µg/kg	5
Dibromochloromethane	<	5 µg/kg	5
Dichlorodifluoromethane	<	10 µg/kg	10
Ethylbenzene	<	5 µg/kg	5
Methylene chloride	<	10 µg/kg	10
Tetrachloroethene	<	5 µg/kg	5
Toluene	<	5 µg/kg	5
trans-1,2-Dichloroethene	<	5 µg/kg	5
trans-1,3-Dichloropropene	<	5 µg/kg	5
Trichloroethene	<	5 µg/kg	5
Trichlorofluoromethane	<	10 µg/kg	10
Vinyl chloride	<	10 µg/kg	10
Xylenes	<	5 µg/kg	5

Quality Control Data

Surrogate	% Recovery	QC Limits
1,2-Dichloroethane-d4	104	70 - 121%
Toluene-d8	99.8	81 - 117%
4-Bromofluorobenzene	100	74 - 121%

Respectfully submitted,

Bradden Bigelow, Lab Manager